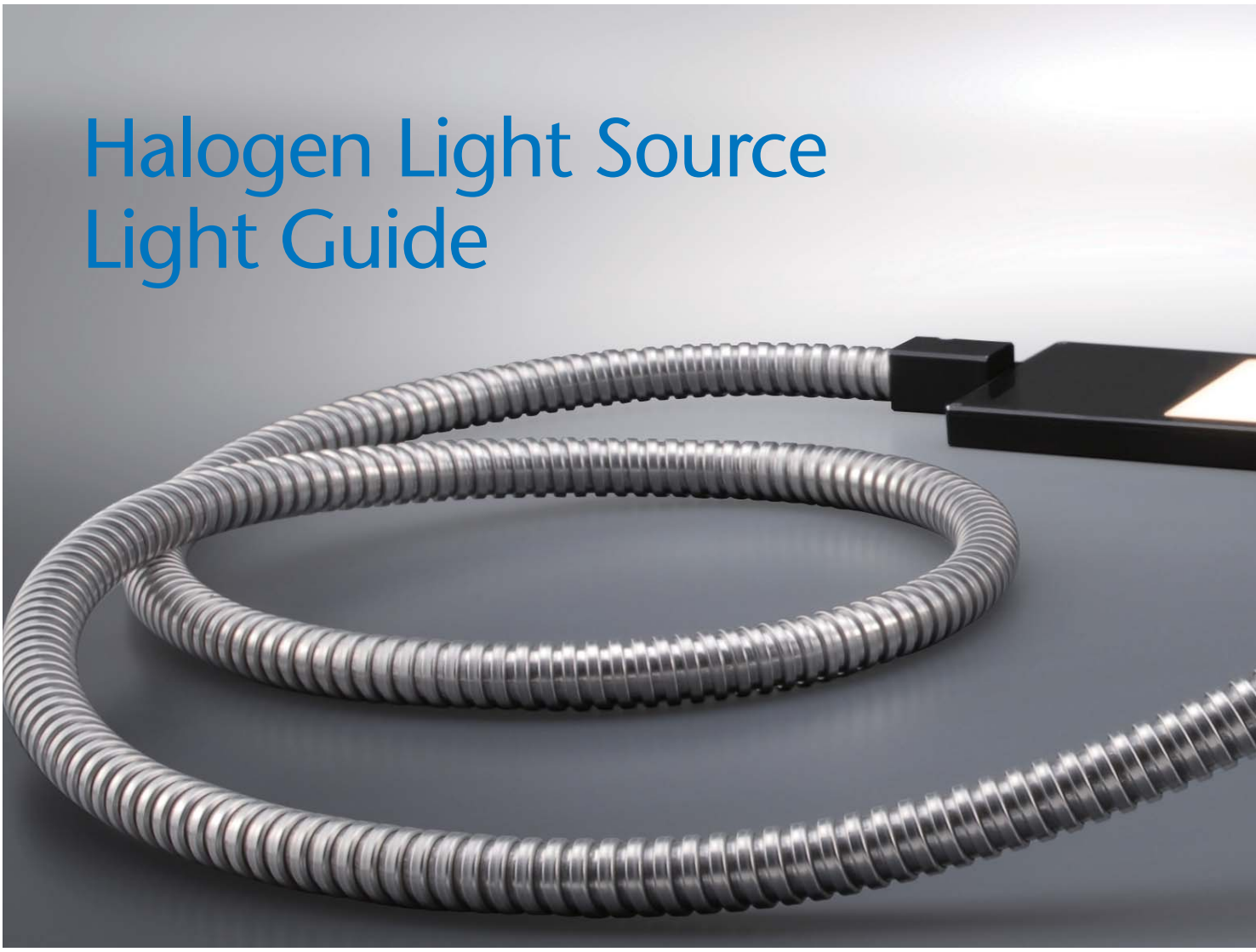
Light Source & Light Guide

Halogen Light Source Light Guide



The MHAA / AB series Halogen light sources are compact with a robust design. These light sources are suitable for mounting. The complete product range includes 100W, 150W and 100W NIR (1127nm). The light source can be controlled manually and through external controls, including 0-5V analog control and parallel 8-bit digital control.

Advantages of Fiber Optic Light Guides:

- Compact Illuminating Unit Size
- Highest Intensity Output
- Uniform Light
- All Visible Wavelengths and IR When Required
- Directional Light Control
- External Heat and Noise From Illuminated Area

Light Sources and Available Light Guides

Light Source	Light Guide				Other Options
	Plastic		Compound Glass		
	Fiber Bundle Diameter (Light Source Side)		Standard	Heat Resistant	Internal Filter (*1)
	Below 6 Dia.	6 Dia. or More			
MHAA-100W	○	KA-03 (*3)	○	○	○
MHAB-100W-IR	×	×	×	○	× (*2)
MHAB-150W	×	×	○	○	△

*1 The characteristics may be changed by deterioration under the operating environment.
*2 Deterioration may be caused by use at high output.
*3 This is when the product is used at the environmental temperature of 40˚C or less.

Halogen Light Sources
MHAA / AB
MHAB-IR

Ring Light Guides
MRG/P
Straight Light Guides
MSG/P
Bifurcated Light Guides
MWG/P
Multifurcated Light Guides
M#G#
Plate Type Light Guides
MPP
Line Light Guides
MKG/P
Long Width Line Light Guides
MFKG/P

Condenser Lenses
Light Guide Options

CE CE Marking

RoHS RoHS Directive

100 W Wattage

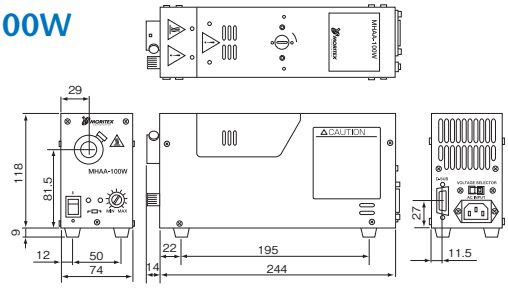
150 W Wattage

Halogen Light Sources
MHAA-100W Series

MHAA-100W Halogen Light Source is the standard model in the Halogen Light Source Series because it exhibits excellent performance in all aspects.

- **Worldwide power supply specifications(100/200V switch type)**
- **Compliance with CE Marking safety standards**
- **Environmentally friendly and in compliance with the RoHS Directive**

MHAA-100W



Model	MHAA-100W	
Order Code	MHAA-100W-100V	★ MHAA-100W-200V
AC Type	100V	200V
Setting At Shipping	Input Voltage Selector: At 115 With 2.0-Meter AC Cable MC-AC 100A	Input Voltage Selector: At 230 With 2.0-Meter AC Cable MC-AC 200A
Input Voltage	AC100-120V/200-240V (50/60Hz)	
Input Voltage Switch*1	Input At AC100: Setting At 115 Input At AC200: Setting At 230	
Input Current (Typ)	2.4A (At AC 100V Input) 1.2A(At AC 200V Input)	
Compatible Lamp*2	LM-100 (12.0V,100W)	
Lamp Voltage	DC11.7V ±0.2V (Max.)	
Average of Lamp Life Time*3	1,000 Hours Nominal	
Average Illuminance*4	Approximately 30,000 lx	
Color Temperature	3,100K	
Installation	Rubber legs placed on a flat surface	
Weight	Approximately 2.0kg	
Protection Function	Lamp Overcurrent Detection Function: Monitor output, cut off lamp power, LED (RED) on front panel ON Lamp Burn-out Detection Function: Monitor output, LED (RED) on front panel ON Internal High Temperature Detecting Function: Monitor output, cut off lamp power	
Operating Temperature and Humidity	0°C to 45°C :Linear Decrease Down to 80%RH at 31°C and 50%RH at 40°C	
Safety and EMC Standard*5	Safety Standard : IEC61010-1 EMC Standard : EN61000-6-2/EN55011	

Special Power Supply Unit Specifications(AC100V Type)

Order code	Remarks
★ MHAA-100W-SO-100V	Bult-in Shutter (Normally Open)
★ MHAA-100W-SC-100V	Bult-in Shutter (Normally Close)
MHAA-100W-D-100V	With External 8-Bit Digital Dimmer
★ MHAA-100W-D-SO-100V	With External Digital Dimmer and Built-In Shutter (Normally Open)
★ MHAA-100W-D-SC-100V	With External Digital Dimmer and Built-In Shutter (Normally Close)

★Made-to-order products.

Optional Parts

Cable with External Remote Connector	MC-EXC-02
External Remote Connector	D-SUB15S
Replacement lamp	LM-100

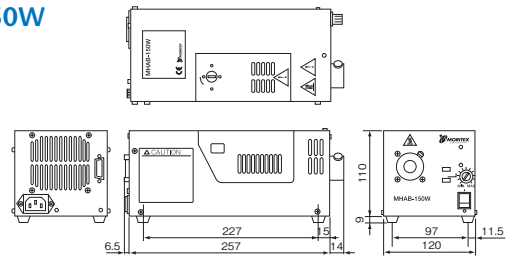
*1 When the switch is set at 115V, do not apply AC 200V. Doing so may damage the power supply. When the input voltage selector is set at 230V, the device does not run on AC 100V.
*2 Only compatible lamps can be used.
*3 Many lamps are powered on at rated current and the time measurements until their filaments blow are normally distributed. The average time from the peak time until the survival ratio of 50% is called the average life time.
*4 The average luminance is at 50mm from the fiber output at maximum volume when a MORITEX standard light guide (MSG4-2200S) is attached.
*5 This is only when the voltage is -200V.
Note: May be unable to use with plastic fibers.

Halogen Light Sources
MHAB-150W Series

150W Halogen Light Source of dual wattage, designed for 150W but also available for 100W if a 100W lamp is attached. The intensity is the most powerful among the Halogen Light Source Series.

- **High illuminance model max 80,000 lx (2.6 times a 100W light source)**
- **100W/150W Dual Wattage Lamp**
- **Environmentally friendly and in compliance with the RoHS Directive**
- **Worldwide power supply specifications**

MHAB-150W



Model	MHAB-150W	
Order Code	MHAB-150W-100V	★ MHAB-150W-200V
AC Type	100V	200V
Setting At Shipping	With 2.0-Meter AC Cable MC-AC 100A	With 2.0-Meter AC Cable MC-AC 200A
Input voltage	AC100V-240V (50Hz/60Hz)	
Compatible Lamp*1	LM-150 LM-150C LM-100	
Lamp Voltage	DC 14.7V±0.2V (Max.) (LM-150 LM-150C) DC 11.7V±0.2V (Max.) (LM-100)	
Average Lamp Life*2	50 Hours (LM-150), 500 Hours (LM-150C), and 1,000 Hours (LM-100) Nominal	
Average Illuminance*3	Approx. 80,000 lx (LM-150), 45,000 lx (LM-150C), and 30,000 lx (LM-100)	
Color Temperature	3400K (LM-150) 3200K (LM-150C) 3100K (LM-100)	
Installation Method	Rubber legs placed on flat surface	
Weight	Approximately 3.2kg	
Operating Temperature and Humidity	0°C to 45°C:Linear Decrease Down to 80%RH At 31°C and 50%RH At 40°C	
Protection Function	Lamp Overcurrent Detection Function: Monitor output, cut off lamp power, LED (RED) on front panel ON Lamp Burn-out Detection Function: Monitor output, LED (RED) on front panel ON Internal High Temperature Detecting Function: Monitor output, cut off lamp power	
Safety and EMC Standard*4	Safety Standard : IEC61010-1 EMC Standard : EN61000-6-2/EN55011	

★Made-to-order products.

Special Power Supply Unit Specifications (AC100V Type)

Order code	Remarks
MHAB-150W-D-100V	With External Digital Dimmer

Optional Parts

Cable with External Remote Connector	MC-EXC-02
External Remote Connector	D-SUB15S
Replacement lamp	LM-100, LM-150, LM-150C

*1 Only compatible lamps can be used.
*2 Many lamps are powered on at rated current and the time measurements until their filaments blow are normally distributed. The average time from the peak time until the survival ratio of 50% is called the average life time.
*3 The average luminance is at 50mm from the fiber output at maximum volume when a MORITEX standard light guide (MSG4-2200S) is attached.
*4 This is only when the voltage is -200V.
Note: May be unable to use with plastic fibers.

Infrared 100W Halogen Light Source
MHAB-100W-IR

100W RoHS CE

Completed
Patent Registration

100W halogen light source which can illuminate near infrared of a halogen lamp.

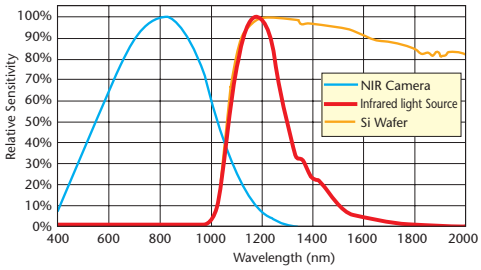
- **Irradiation of silicon transmission wavelength (1127nm or more)**
- **Radiation mechanism using unique technology**

Model	MHAB-100W-IR	
Order Code	MHAB-100W-IR-100V	★ MHAB-100W-IR-200V
AC Voltage	100V	200V
Setting At Shipping	AC cable: With MC-AC100A-2.0M	AC cable: With MC-AC200A-2.0M
Input Voltage	AC100V-240V(50Hz/60Hz)	
Compatible Lamp*1	LM-100-IR(12.0V/100W)	
Lamp Voltage	DC 10.7± 0.2V(Max.)	
Average Of Lamp Life Time*2	1,000 Hours Nominal	
Installation	Rubber Legs Placed on Flat Surface	
Weight	Approximately 3.2kg	
Intensity Control	Manual intensity control/ External volume intensity control/ External analog intensity control	
External Dimensions	W120 ×H110 ×D257mm*3	

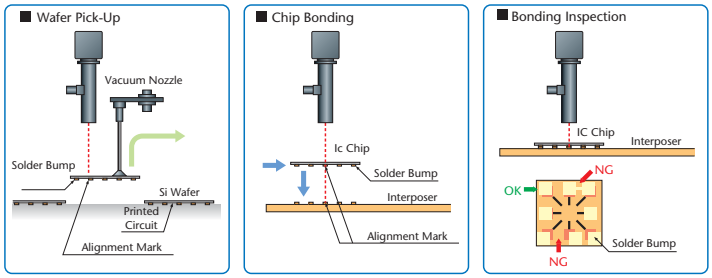
★Made-to-order products.

*1 Example application
*2 Many lamps are powered on at rated current and the time measurements until their filaments blow are normally distributed. The average time from the peak time until the survival ratio of 50% is called the average life time.
*3 Projections are not included.

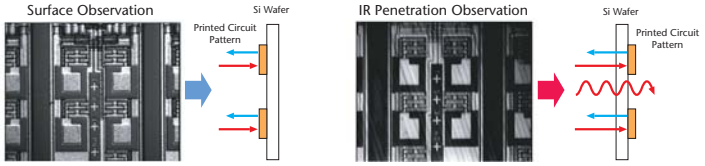
Spectral Characteristic Data



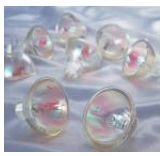
Example Application



IR Coaxial Penetration Observation



Accessories for IR Systems



Replacement Lamp

Model	LM-100-IR
Specification	IR Reflection Coating for 100W

Lens Series for IR System

Model	MML4-80D-IR	MML6-80D-IR	MML8-80D-IR
Specification	For IR x4x6x8		

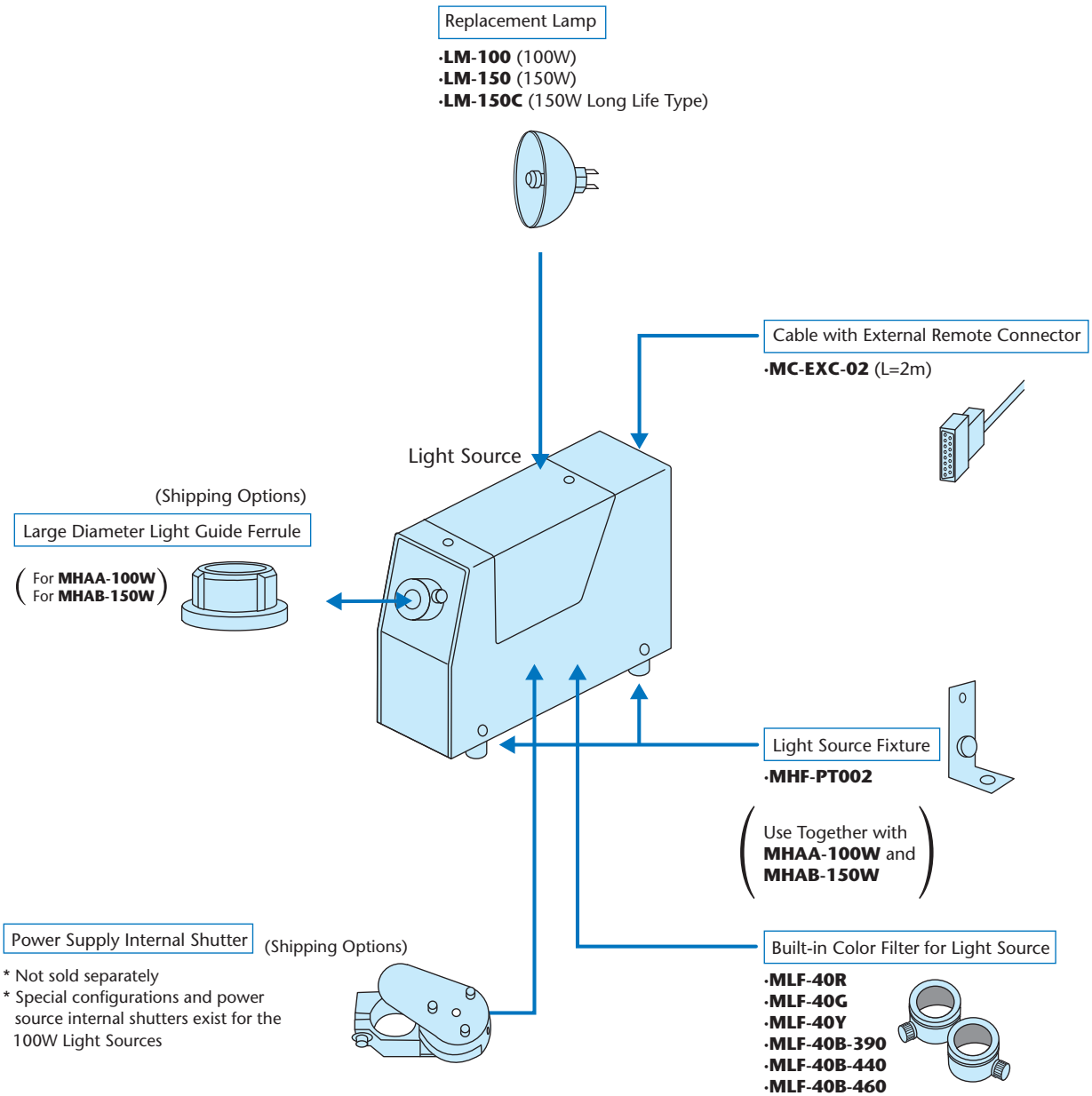
Heat Resistance Light Guide

Model	MSG4-1100S-HR
Specification	Heat Resistant

Note: Only heat-resistant light guides can be used.

Options

Option Attachment Drawing for Halogen Light Sources



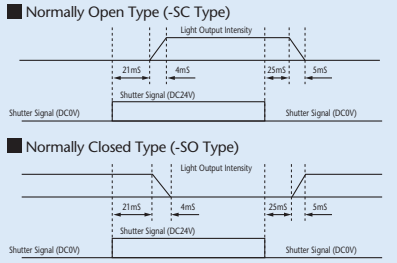
For light source compatibility, specifications and product codes of the options, see corresponding pages.

Light Source Equipment Options

Light Source Internal Shutter (optional at time of shipping) Made-to-order

- Internal shutter can save extra installation space
- Long life time enabling shutter to open and close 50 million times
- Open/close is possible regardless of light intensity control
- Users can chose opening or closing the shutter when applying voltage

Shutter ON/ OFF Specifications
(for 50W, 100W Light Sources)



* Not sold separately as an individual item.
* For each of the 50W, 100W, and 150W light sources there are customized specification models each with an built-in power supply.

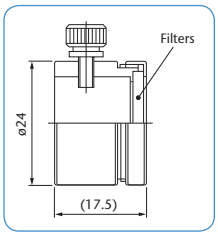
Specifications

• Operation input voltage: DC 24V 0.32A
• Shutter response speed

		50W, 100W	150W
Normally Open	Closed	25ms	33ms
	Open	30ms	
Normally Closed	Open	25ms	
	Closed	30ms	

* Response speed for a fiber with a diameter of 4mm when no protective diode exists.
Average life time for opening and closing of the shutter is approximately 50 million times (average for tests performed by MORITEX).
* The OPEN and CLOSE speed of the shutter may vary slightly depending on the capabilities of the power supply being used.
(Attachment of the model number for ordering)
(Example) When a normal open shutter is attached to MHAA-100W-100V: MHAA-100W-SO-100V.

Light Source Internal Color Filter Made-to-order



Model	MLF-40R	MLF-40G	MLF-40Y	MLF-40B-390	MLF-40B-440	MLF-40B-460
Color	Red	Green	Yellow	Bluish purple	Blue	Light blue
Peak Wavelength (nm)	-	533	-	390	440	460
Transition Wavelength (nm)	600	-	480	-	-	-

* Attach the filter to the light guide retainer inside the light source as if to cover it.
* This filter cannot be used together with a built-in shutter.

Light Source Fixture MHF-PT002 (4 pcs./set)

Model	MHF-PT002

*Contact MORITEX about the mounting dimensions.

Cable with External Remote Connector / External Remote Connector

Model	MC-EXC-02	D-SUB15S

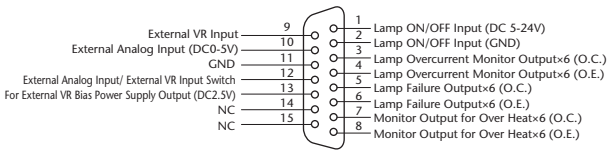
Halogen Lamp Series : Dedicated High, Highly Reliable Halogen Lamp Series

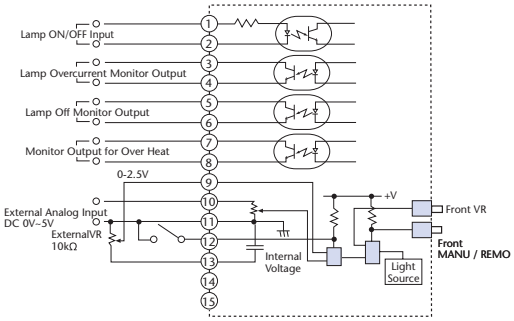
	LM-100	LM-150	LM-150C
Power Consumption	100W	150W	150W
Lamp Voltage	DC11.7V	DC14.7V	DC14.7V
Lamp Current	8.4A	10A	10A
Average Lamp Life *1	1,000hrs Nominal	50hrs Nominal	500hrs Nominal
Average Illuminance *2	Approx. 30,000 lx	Approx. 80,000 lx	Approx. 45,000 lx
Color Temperature	3,100 K	3,400 K	3,200 K

*1 Many lamps are powered on at rated current and the time measurements until their filaments blow are normally distributed. The average time from the peak illumination until the survival ratio of 50% is called the average life time.
*2 The average illuminance is measured at 50mm from the fiber end at maximum intensity when a MORITEX standard light guide (MSG4-2200S) is attached.

For Use with MHAA-100W / MHAB-150W

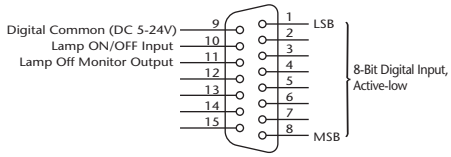
External Analog Control Connection Specifications



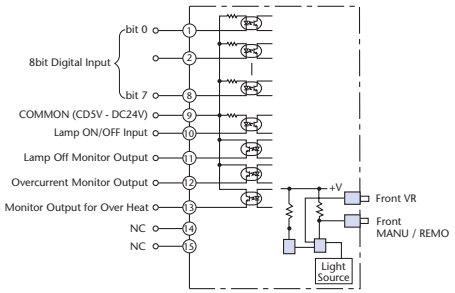


External 8-Bit Digital Control Connection Specifications

● External Analog Control Connection Specifications



● How to Use Connection Specifications and Switch Modes



● Digital Control Truth Table

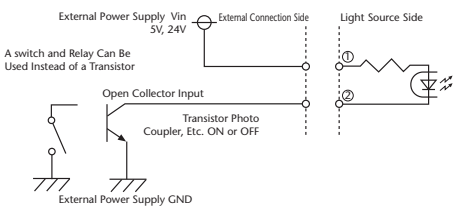
LAMP ON/OFF	LAMP Monitor	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0	LAMP Output
0	0	×	×	×	×	×	×	×	×	OFF
1	1	×	×	×	×	×	×	×	×	Lamp Burn-Out
1	0	0	0	0	0	0	0	0	0	ON (Min.)
1	0	0	0	0	0	0	0	0	1	ON
1	0	0	0	0	0	0	0	1	0	ON
1	0	0	0	0	0	0	0	1	1	ON
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
1	0	1	1	1	1	1	1	0	1	ON
1	0	1	1	1	1	1	1	1	0	ON
1	0	1	1	1	1	1	1	1	1	ON (Max.)

Note: X ON/ OFF Can Be Selected 0 Low 1 High

*LLS2 is equipped with 8bit modulation and “On/Off” logic pins, and capable of logic inversion.

Signal Output Detection Circuit Connection Example

● Signal Input Circuit Connection Example
(Lamp ON/OFF Signal)



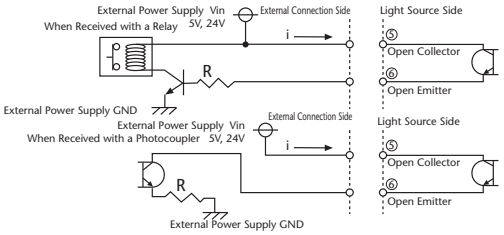
Operation	
ON	OFF
OFF	Lamp on

With Transistor and Switch

* The relationship between external resistance and current is as follows:
Use a resistor of 1/4W power rating or greater capacity

Vin	Current
DC5V	Approximately 1~2mA
DC24V	Approximately 6~12mA

● Signal Output Detection Circuit Connection Example
(Lamp Burn-Out Detection Function Signal)



*When Signal Is Outputting At i = 1mA Approximately 0.2v Between Pins No.5 and 6
At i = 5mA Approximately 1v Between Pins No.5 and 6

Signal	Between Pins No.5 and 6	Current
Lamp Normal	Not Conducted	Off
Lamp Burn-Out	Conducted	On

* The relationship between external resistance and current is as follows:
Use a resistor of 1/4W power rating or greater capacity

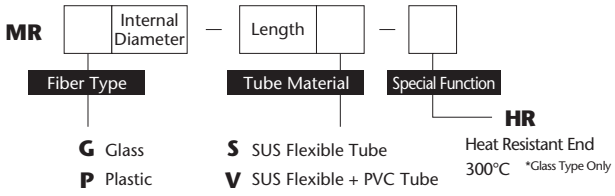
Vin	R(Ω)	Current I (mA)
DC5V	1~3.3k	Approx. 1to 4
DC24V	4.7~22k	Approx. 1to 5

* The resistance and current values differ depending on parts used. Check all values well before use.

Ring Light Guides
MRG/P Series

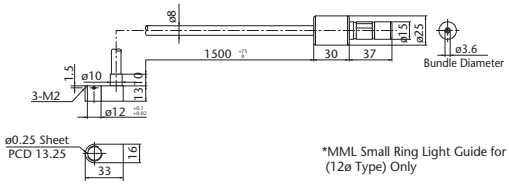
Illumination from 360˚ produces uniform light. These light guides are optimum for camera and microscope inspections.

Explanation of Model Code



MRP12-1500V

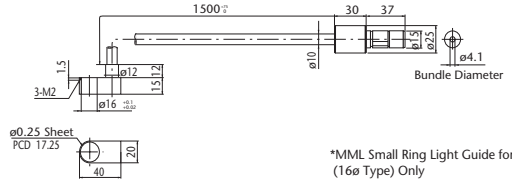
Minimum Bend R=30



*MML Small Ring Light Guide for MML (12ø Type) Only

MRP16-1500V

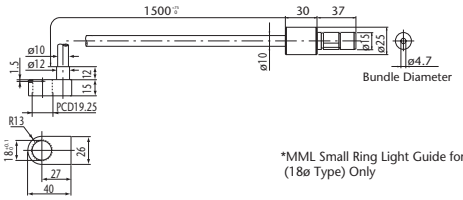
Minimum Bend R=30



*MML Small Ring Light Guide for MML (16ø Type) Only

MRP18-1500V

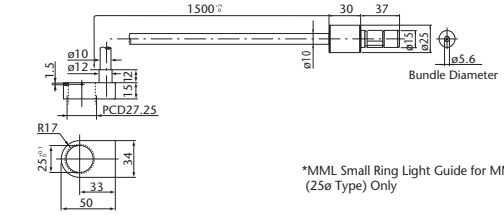
Minimum Bend R=30



*MML Small Ring Light Guide for MML (18ø Type) Only

MRP25-1500V

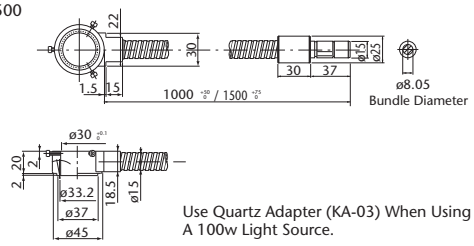
Minimum Bend R=30



*MML Small Ring Light Guide for MML (25ø Type) Only

MRP30-1500V

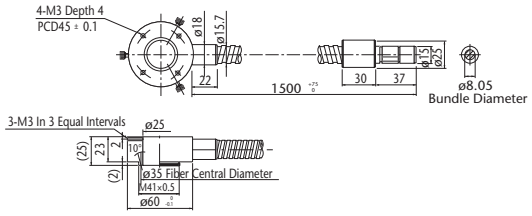
Minimum Bend R=40
L=1500



Use Quartz Adapter (KA-03) When Using A 100w Light Source.

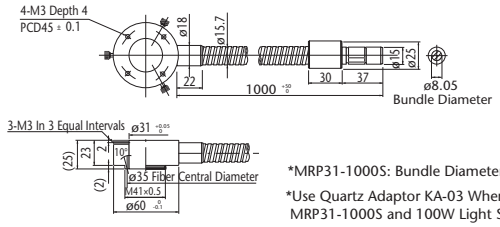
MRG25-1500S

Minimum Bend R=40



MRG31-1000S/1500S/MRP31-1000S

Minimum Bend R=40

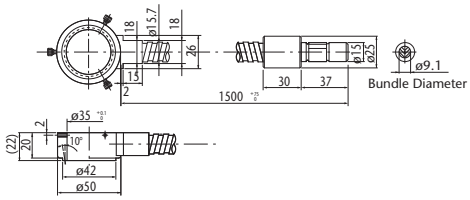


*MRP31-1000S: Bundle Diameter Ø8.7

*Use Quartz Adaptor KA-03 When Using MRP31-1000S and 100W Light Source

MRP35-1500S

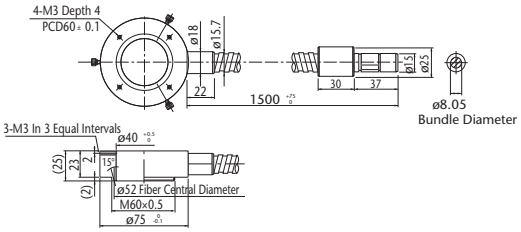
Minimum Bend R=40



*Use Quartz Adaptor KA-03 When Using 100w Light Source

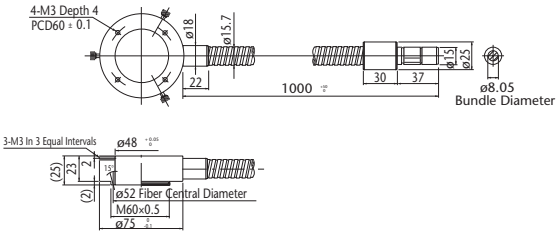
MRG40-1500S

Minimum Bend R=40



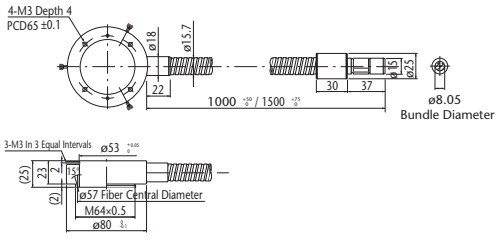
MRG48-1000S/1500S

Minimum Bend R=40



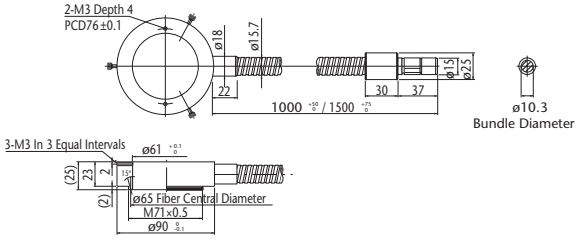
MRG53-1000S/1500S

Minimum Bend R=40



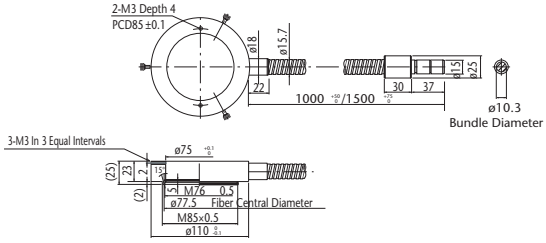
MRG61-1000S/1500S

Minimum Bend R=70



MRG75-1000S/1500S

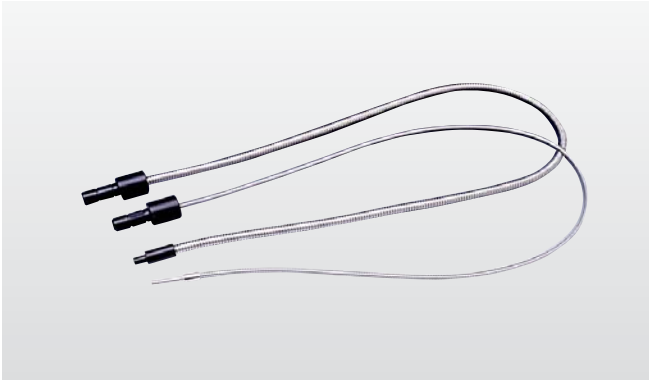
Minimum Bend R=70



Straight Light Guides
MSG/P Series

In addition to our standard straight type light guides, many different options are available such as random assembly, heat resistant, and small diameter types.

These light guides are ideal for spot and coaxial illumination.Select a product to suit the application.



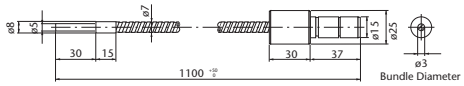
Explanation of Model Code

MS [ ][ ] – Length [ ] – [ ]

Fiber Type	Bundle Diameter	Tube Material	Special Function
G Glass	**3** ø3	**R** Interlocking Tube	**HR** Heat Resistant End 300°C *Glass Type Only
P Plastic	**4** ø4	**S** SUS Flexible Tube	**SD** Small Diameter Type
	6 ø6	**V** SUS Flexible + PVC Tube	**RM** Random Assembly
	8 ø8		
	10 ø10		

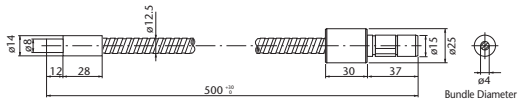
MSG3-1100S-SD

Minimum Bend R=25



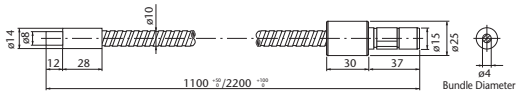
MSG4-500R (Interlocking Type)

Minimum Bend R=60



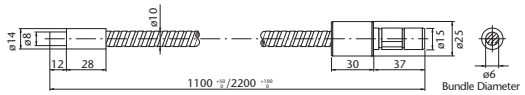
MSG4-1100S/2200S/MSP4-1100S
MSG4-1100S-RM/MSG4-2200S-RM

Minimum Bend R=30



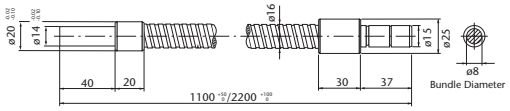
MSG6-1100S/2200S
MSG6-1100S-RM/2200S-RM

Minimum Bend R=30



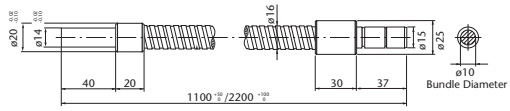
MSG8-1100S/2200S

Minimum Bend R=50



MSG10-1100S/2200S

Minimum Bend R=60



Bifurcated Light Guides
MWG/P Series

Use these light guides for applications where lighting from two directions is needed, for example when using a microscope or camera, or for pattern recognition. Coatings and tube materials can be selected to suit the purpose. Interlock type tube material allows for any necessary bending and for fixing in position SUS flexible ("goose neck") type tube material allows you to move the light guide around freely in a small space.

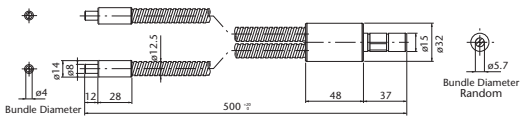
Explanation of Model Code

MW □ – Length □ – □

Fiber Type	Tube Material	Special Function
G Glass	R Interlocking Tube	HR Heat Resistant End 300°C *Glass Type Only
P Plastic	S SUS Flexible Tube	SD Small Diameter Type
	V SUS Flexible + PVC Tube	L L-shape Type
	SR SUS Flexible + Interlock	

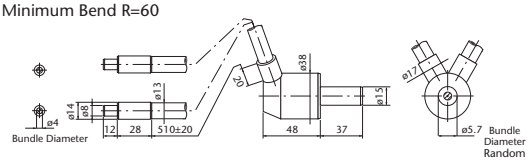
MWG-500R (Interlocking Type)

Minimum Bend R=120



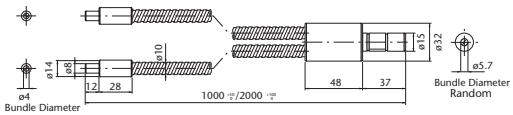
MWG-L-650R (Interlocking Type)

Minimum Bend R=60



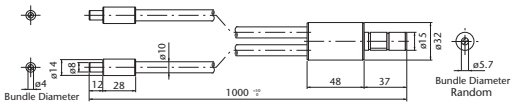
MWG-1000S/2000S

Minimum Bend R=30



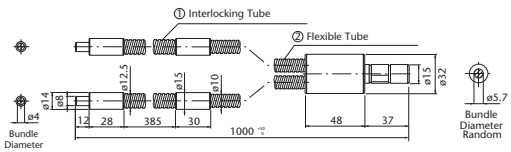
MWG-1000V/MWP-1000V

Minimum Bend R=30



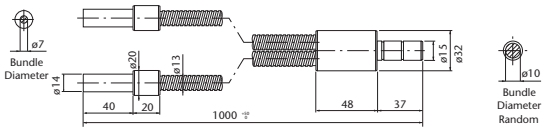
MWG-1000SR

Minimum Bend R(1)=120、(2)=30



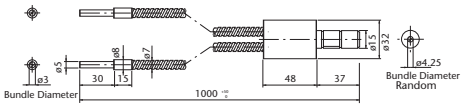
MWG7-1000S

Minimum Bend R=50



MWG-1000S-SD

Minimum Bend R=25



Multifurcated Light Guides
M3G/M4G Series

A 3 to 4 multifurcated light guide can be used when it is necessary to illuminate an object from many different angles, for example in the case of IC pin inspection.

Explanation of Model Code

M □ **G** □ — Length **S** — □

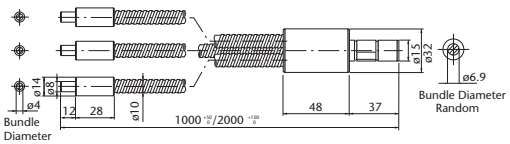
Number of Branches
- **3** 3-Branch
- **4** 4-Branch

Bundle Diameter
- **3** ø3
- **4** ø4

Special Function
- **SD** Small Diameter Type

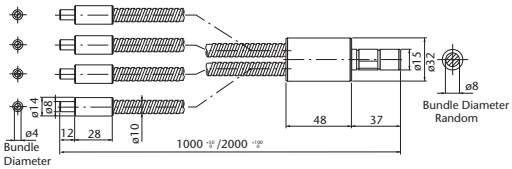
M3G4-1000S/2000S

Minimum Bend R=30



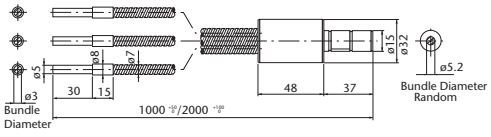
M4G4-1000S/2000S

Minimum Bend R=30



M3G3-1000S-SD/2000S-SD

Minimum Bend R=25



M4G3-1000S-SD/2000S-SD

Minimum Bend R=25

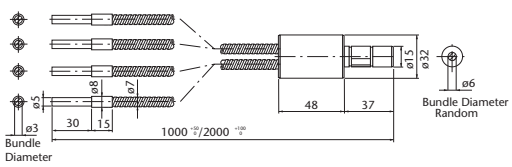


Plate Type Light Guides
MPP Series

These plate type light guides do not require much space due to their slim, compact design.

MORITEX's unique reflected light inducer allows for even and bright illumination. They can be used for multi-observation inspections that require transmitted and uniform illumination such as backlighting electronic components or semi-transparent surfaces.

Explanation of Model Code

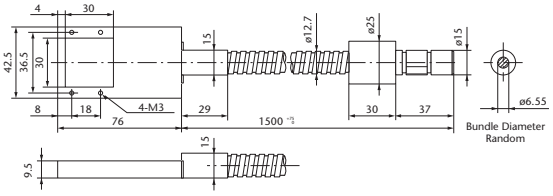
MPP □ — **1500S-2**

Illuminating Area

30 30×30mm
60 60×60mm
90 90×90mm

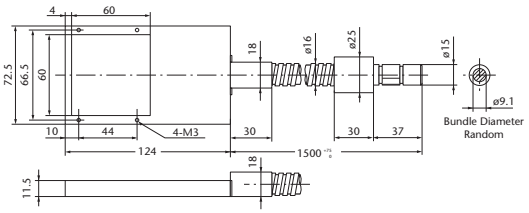
MPP30-1500S-2

Minimum Bend R=40



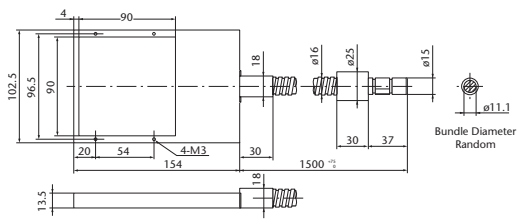
MPP60-1500S-2

Minimum Bend R=50



MPP90-1500S-2

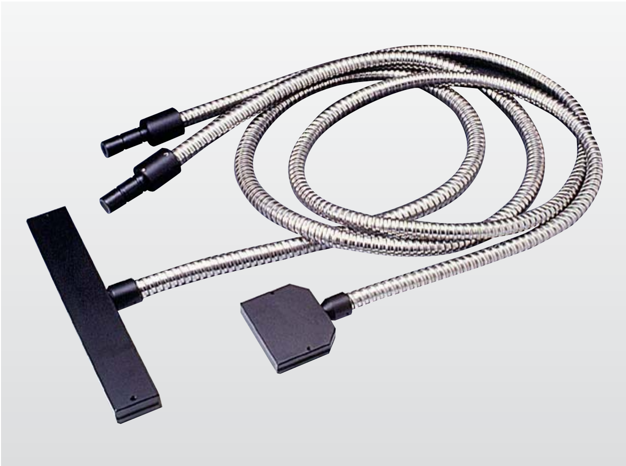
Minimum Bend R=60



*Plastic light guides that cannot be used with 150W light sources: MPP30-1500S-2, MPP60-1500S-2, and MPP90-1500S-2.Use quartz adapter (KA-03) when using a 100W light source.

Line Light Guides
MKG/P Series

These light guides can be used when line illumination or line scan lighting is necessary.



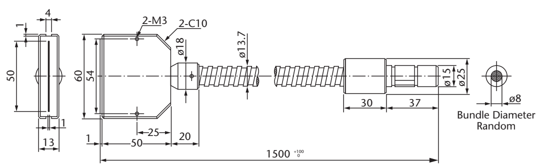
Explanation of Model Code

MK [ ] [ ] [ ] — Length S

Fiber Type		Line Length			
G	Glass	**50**	50mm	**×0.5W**	2-Branch
P	Plastic	**180**	180mm		

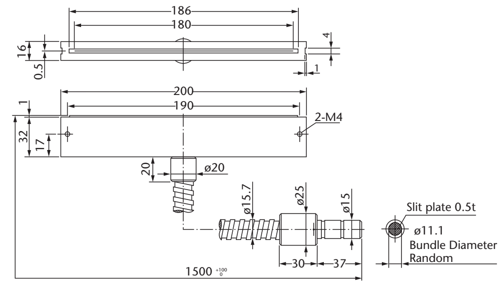
MKG50-1500S

Minimum Bend R=40



MKP180-1500S

Minimum Bend R=40

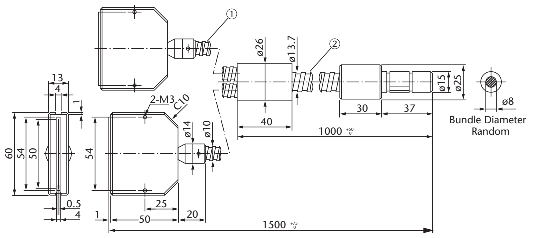


*150W light sources cannot be used with MKP180-1500S. Use quartz adapter (KA-03) when using a 100W light source.

MKG50×0.5W-1500S

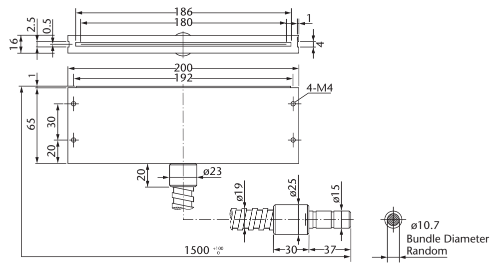
Made-to-order

Minimum Bend (1)=30、(2)=40



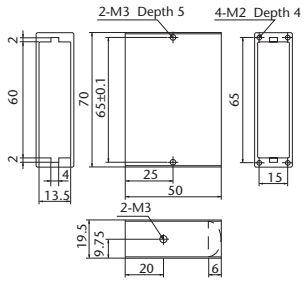
MKG180-1500S

Minimum Bend R=60



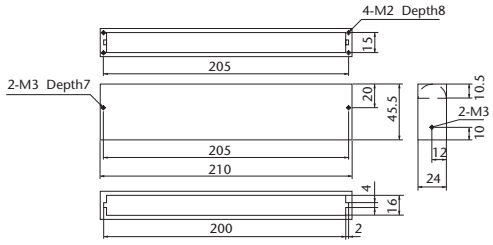
Condenser Lenses for Line Light Guides

MLK-50

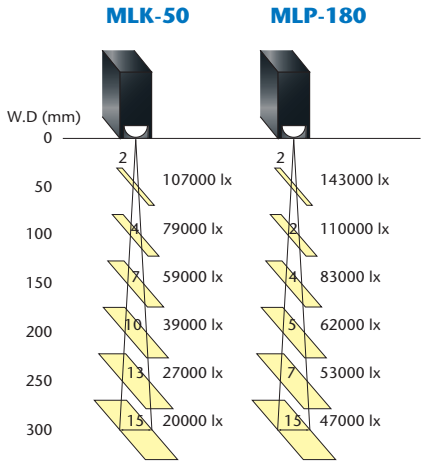


Cylindrical focusing lens with the MKG50 light guide achieves a highly uniform beam with greater illuminance.

MLP-180



Cylindrical focusing lens with the MKP180/ MKG180 light guides achieves a highly uniform beam with greater illuminance.



- **Light source: 100W halogen light source (Volume: max)**
- **Fiber: MKG50-1500S for MLK-50**
  MKP180-1500S for MLP-180

Long Width Line Light Guides
MFKG/P Series

Line light guides with a uniform line width of 180mm can be connected to produce seamless, uniform illumination of high intensity over long widths.

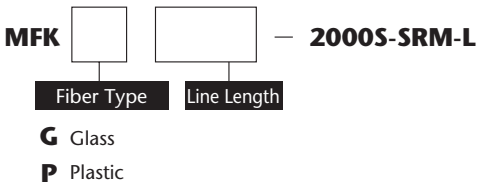
These light guides are available in multiples of 180mm from 360mm to 1440mm long. Use these long width light guides for illumination when inspecting LCD, PDP, and other glass boards and substrates or sheet products with line cameras. Please note that a variable number of light sources are needed for each individual unit depending on the length.

Made-to-order

MFKG Series
Line Light Guides (glass fiber)

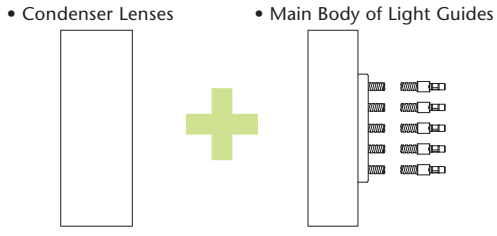
MFKP Series
Line Light Guides (plastic fiber)

Explanation of Model Code



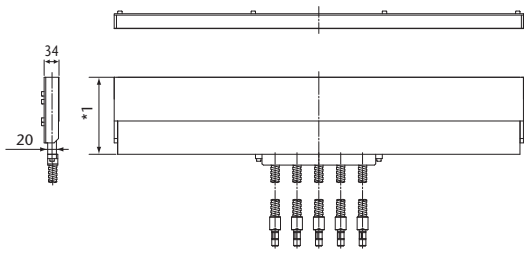
Model	Fiber Type	Line Length (mm)	Required Quantity of Light Source
MFKG360-2000S-SRM-L	Glass	360	2
MFKG540-2000S-SRM-L	Glass	540	3
MFKG720-2000S-SRM-L	Glass	720	4
MFKG900-2000S-SRM-L	Glass	900	5
MFKG1080-2000S-SRM-L	Glass	1080	6
MFKG1260-2000S-SRM-L	Glass	1260	7
MFKG1440-2000S-SRM-L	Glass	1440	8
MFKP360-2000S-SRM-L	Plastic	360	2
MFKP540-2000S-SRM-L	Plastic	540	3
MFKP720-2000S-SRM-L	Plastic	720	4
MFKP900-2000S-SRM-L	Plastic	900	5
MFKP1080-2000S-SRM-L	Plastic	1080	6
MFKP1260-2000S-SRM-L	Plastic	1260	7
MFKP1440-2000S-SRM-L	Plastic	1440	8

Structure of Long Width Line Light Guides



Long Width Line Light Guides are Composed of a Combination of Condenser Lenses and Line Light Guides

Light Guides



*1 Operable in Range from 159.5 to 194.5mm

Ultra-Uniform Fiber Illumination

MFKG-F1 Model

Made-to-order

An ultra-uniform model for length line light guides. This model has made ultra-even possible through improvement of the falling of light intensity at the connection area, as well as through unique technology in which the light guide incidence sides give uniformity to irregularities in the light source equipment.

Usage

- **Inspection of LCD glass panel inspection**
- **Inspection of color filters**
- **Inspection of sheet surface conditions**

Features

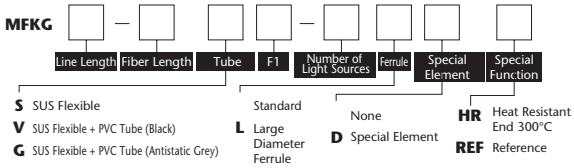
- **Improved uniformity through unique optical fiber manufacturing technology.**
- **Support for a line length of up to 3,600mm is possible.**
- **Ultra-uniform lighting is made possible for the condenser lens unit by using a uniquely designed optical system.**
- **Special optical elements that reduce light source irregularity can be installed in the light input bundle area. (Optional)**
- **The number of input dispersions and light source cap is specified by the customer.**

(Approximate Measurements)
Standard : Maximum Band Diameter 11 / Line Length possible up to 180mm x 0.5
Large Diameter Cap : Maximum Band Diameter 20
Line Length possible up to 500 mm x 0.5

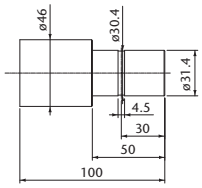
Example of Production Record

MFKG1620-8000G-F1-3LD-HR
Line Length : 1,620mm
Fiber Length : 8,000mm
Model : F1
Light Source : 3 light type large diameter cap / Special element attached / Heat resistant specification

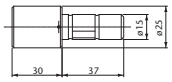
Explanation of Model Code



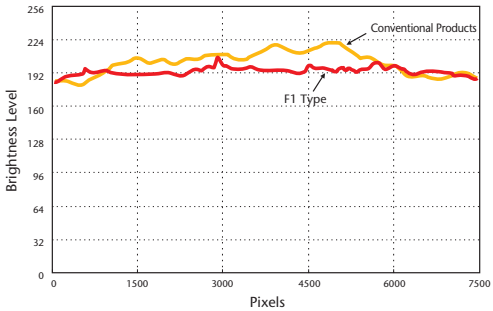
Large Diameter Ferrule



Standard

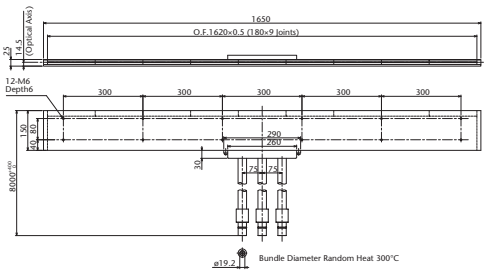


Line Sensor Brightness Level Graph



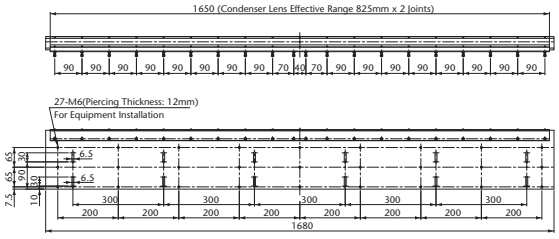
*Note: Graph and values are intended as a reference and are not a guarantee of the product's capabilities

Light Guides



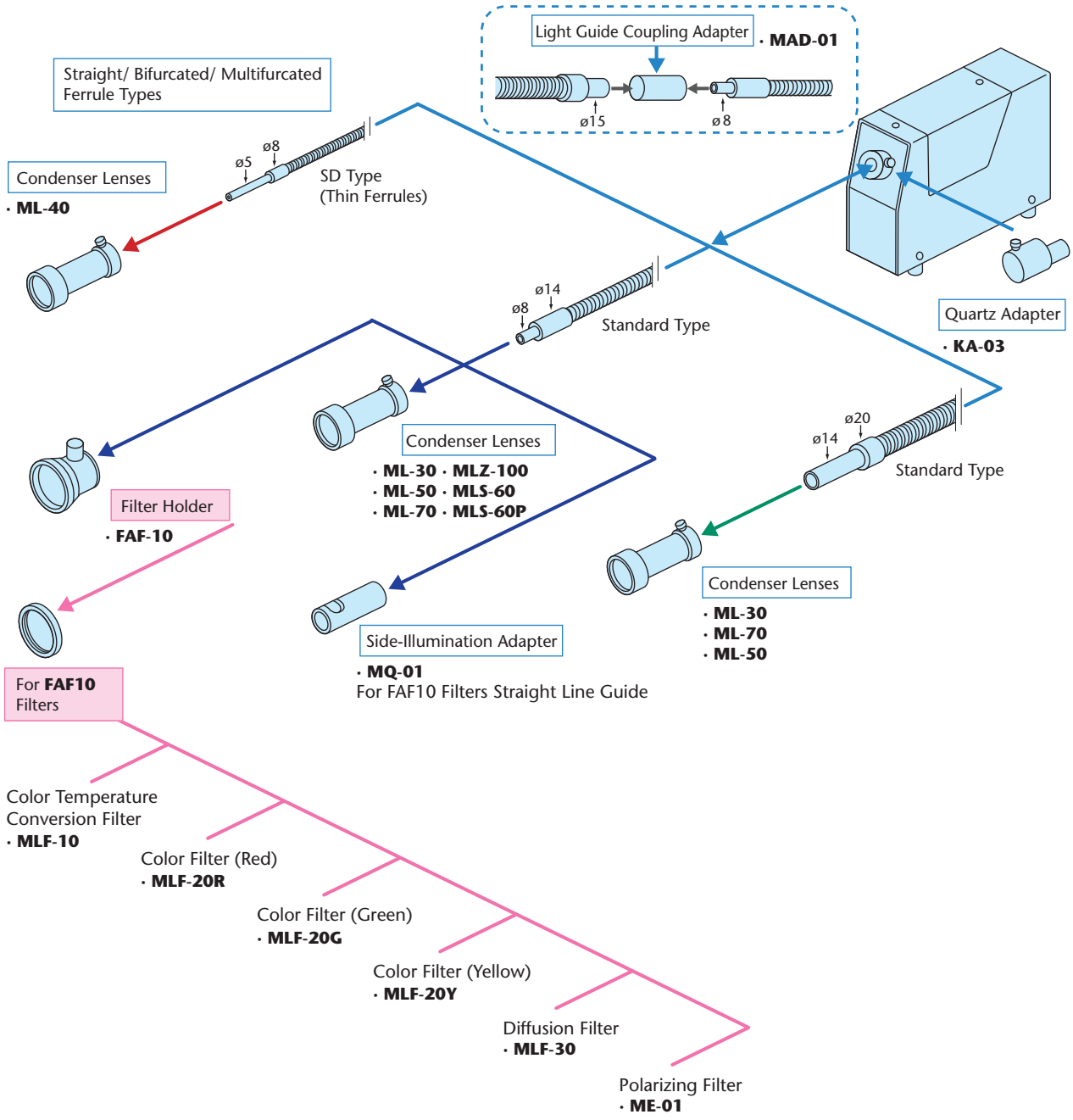
Condenser Lenses

Completed
Patent Registration



Light Guide Options

Option Attachment Drawing for Straight/ Bifurcated/ Multifurcated Light Guides



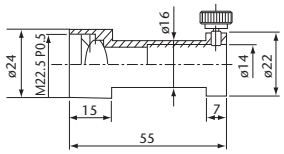
See corresponding pages for light guide compatibility, specifications, and option commodity codes.

For Straight/ Bifurcated/ Multifurcated Light Guides

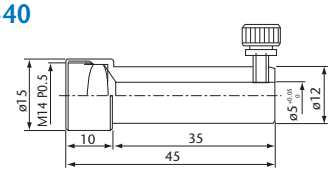
Condenser Lenses

These high performance condenser lenses were uniquely developed by MORITEX for optical fiber light guides. Through careful design and production, MORITEX ensures high quality performance at reasonable cost.

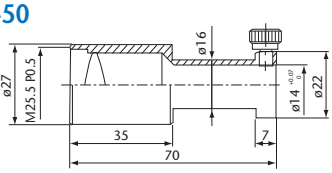
ML-30



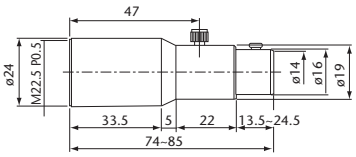
ML-40



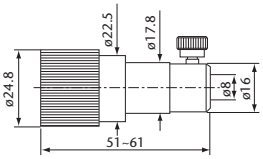
ML-50



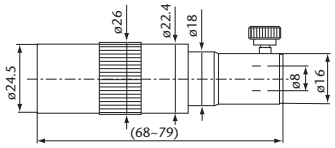
ML-70



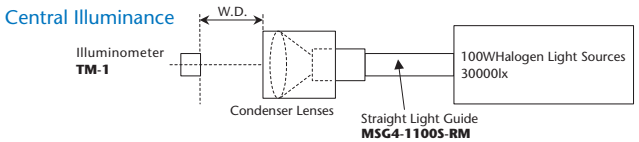
MLZ-100



MLS-60P/MLS-60



Illuminance Characteristic and Illumination Range of Condenser Lenses

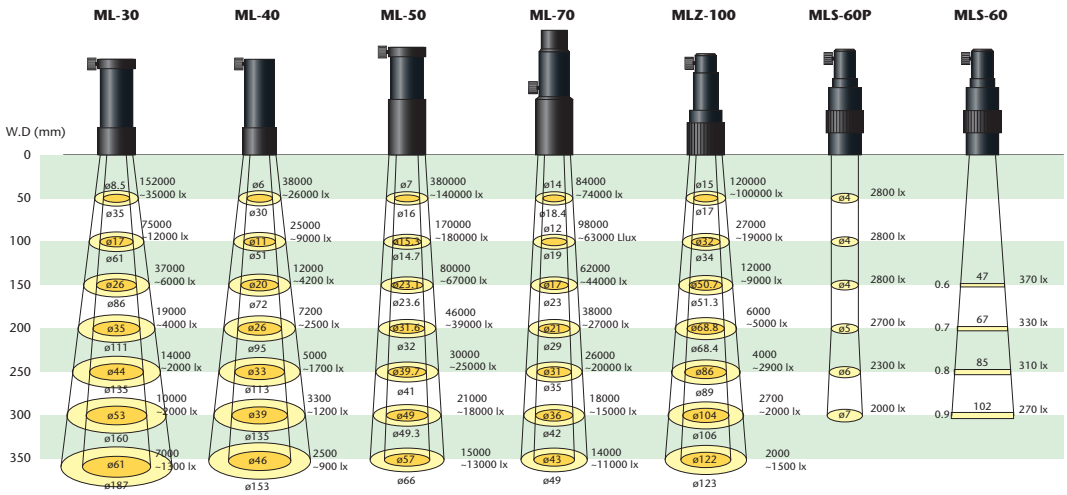


Measuring Method:

Position the illuminometer visually at the center of the illumination range (narrow or wide) and measure the illuminance. Set the illuminance of the light source to 30,000lx for standard measurement (measurement using the standard light guide and measuring instrument).

If the illuminance of the light source set to 30,000lx exceeds 99,900lx (upper limit of the measuring instrument) in standard measurement, reduce the luminous energy to the measurable range and convert the value into the range of 30,000lx later.

Model	Key Features
ML-30	For straight or 2-branch light guides
ML-40	For small diameter type (-SD)
ML-50	Provides almost double the illuminance of the ML-30
ML-70	For two lenses of two groups. Condenses into A uniform, comparatively small spot beam.
MLZ-100	Uniform spot beam with each working distance. Adjustable focus function by helicoid.
MLS-60P	Fine spot beam, focused by helicoid. Adjustable focus function by helicoid.
MLS-60	Uniform and sharp slit beam, focused by helicoid. Adjustable focus function by helicoid.



• Light source: 100W halogen light source (volume: max) • Fiber: MSG4-1100S-RM for ML-30, ML-50, ML-70, MLZ-100, and MLS-60/60P MSG3-1100S-SD for ML-40

Filters and Adapters

A filter or adapter can be attached to the illumination port of MORITEX straight, bifurcated, or multifurcated light guide to change the color temperature of the fiber illumination, or to change the color to red, green, or yellow.

Filter Holder

Made-to-order

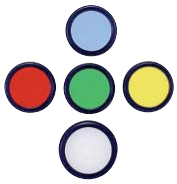
FAF-10

This filter holder fits a straight, bifurcated, or multifurcated light guide with irradiation port of 8.0 in the outside diameter. A color temperature conversion filter (MLF-10), color filter (MLF-20 Series of R, G, and Y colors) and diffusion filter (MLF-30) can be installed.

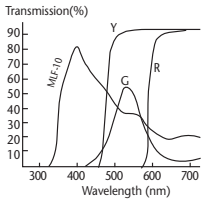
Filters

Made-to-order

MLF-10
MLF-20
MLF-30



*Screw pitch M22.5x0.5



By using a filter holder (FAF-10), the following filters can be attached:

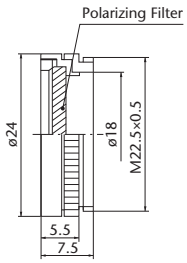
Model	Product Name
MLF-10	Color Temperature Conversion Filter
MLF-20	Color Filter Set (R/G/Y)
MLF-30	Diffusion Filter
MLF Filter Frame	MLF Filter frame

Polarizing Filter for Straight Light Guides

Made-to-order

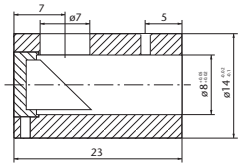
ME-01

- **Can be attached to either the filter holder (FAF-10) or various lenses.**



Side-Illumination Adapter

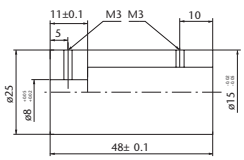
MQ-01



*Used to bend illumination 90° from the light guide output axis.

Light Guide Coupling Adapter

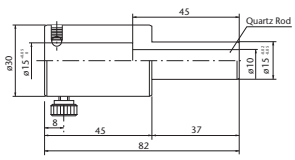
MAD-01



*This adapter joins the ferrules on the output side of one light guide to the input side of another.

Quartz Adapter

KA-03

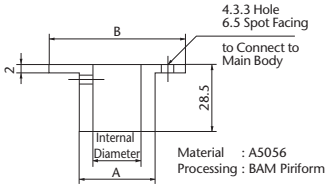


*Use this adapter when combining a 100W light source and a plastic light guide.

Inner Diameter Adapt

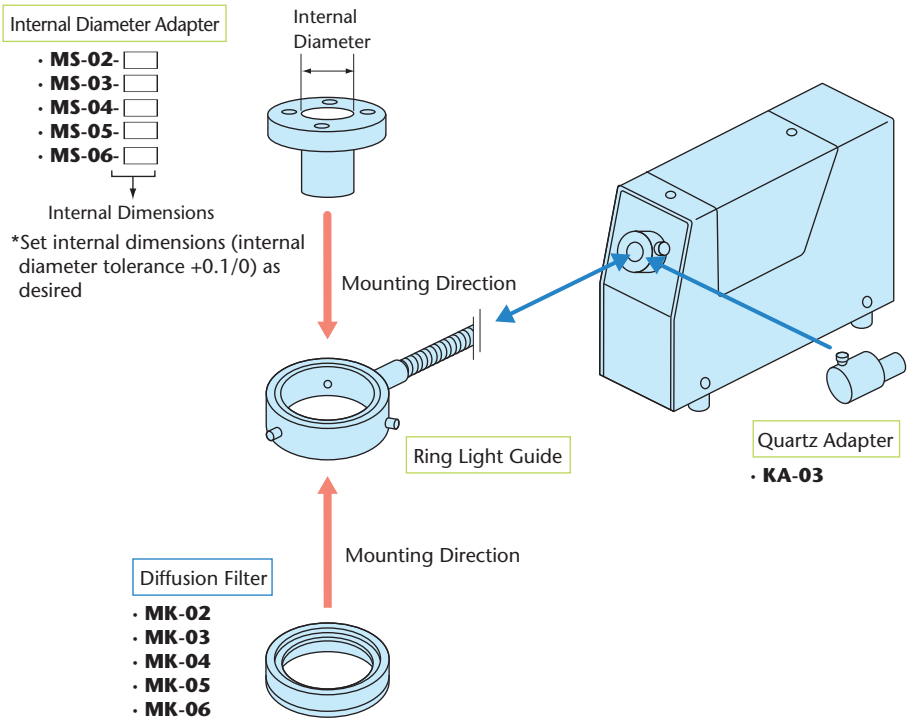
Made-to-order

Model	Compatible model	Dimension A (mm)	Dimension B (mm)
MS-02-□	MRG-31	ø31	ø60
MS-03-□	MRG-48	ø48	ø75
MS-04-□	MRG-53	ø53	ø80
MS-05-□	MRG-61	ø61	ø90



* Specify the bore or internal diameter as required. The tolerance for the internal diameter is +0.1/+0.
* Coating processing not performed for the internal diameter.

System Chart for Ring Light Guides



See corresponding pages for light guide compatibility, specifications, and option commodity codes.

Ring Light Guide Options

Diffusion Filter

Model	Compatible Model	External Diameter	Thickness (mm)
MK-02	MRG-31	ø46	5.5
MK-03	MRG-48	ø65	
MK-04	MRG-53	ø69	
MK-05	MRG-61	ø76	
MK-06	MRG-75	ø90	

Setting this filter at the light irradiation end of a ring light guide suppresses illuminance irregularity, achieving a soft illumination effect.

Light Sources and Fiber Optic Light Guides

ColdVision Series

The ColdVision series provides an extensive offering of light sources, fiber optic light guides, and accessories designed to meet every illumination need for Machine Vision and Microscopy illumination.

Utilizing LED, Halogen and Xenon light sources and accessories for standard and customized solutions, the ColdVision series combines flexibility with versatility. All ColdVision products in the expansive portfolio are specifically designed to operate seamlessly together and represent your best choice for Machine Vision and Microscopy illumination world-wide.

- CE Marking
- UL Listed
- CSA Marking
- RoHS Directive
- 75 W Wattage
- 150 W Wattage
- W (R/G/B) LED Color (Made-to-order Color)

LED Light Source
LLS3

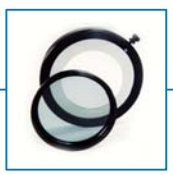
Halogen Light Source
DCR® III
DCR® III Plus
DCR® IV

Halogen Light Source
ACE®

Xenon Flash
Light Source
MaVi-S

- Universal Ringlights
- Midi and Mini Ringlights
- 66 mm / 58 mm Ringlights
- Darkfield Ringlights
- Single Bundles
- Dual and Quad Bundles
- Randomized and Calibrated Bundles
- Single and Dual Gooseneck
- Combination Goosenecks & Bundles
- Lightlines, 1", 2" & 3"
- Lightlines
- Spatially Randomized Lightlines
- Lightline, 45°
- Lightline Lenses
- Single and Dual Backlights
- PANELite® Backlights

- Darkfield Illuminator / Ringlight Adapters
- Ringlight Polarizers & Analyzers
- Diffuse Dome
- Ringlight Reflector Rings / Ringlight Support Apparatus
- Bundle Extenders
- Gooseneck & Bundle Support Apparatus
- Support Apparatus
- Filters, Diffusers & Spot Lenses
- Lightline Linear Polarizer Kits



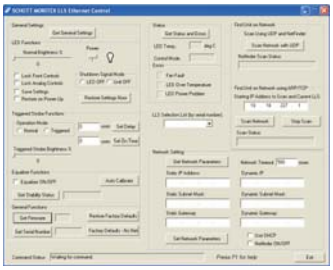
LED Light Source
LLS3

Longer Life, Lower Energy Consumption, Higher Performance

- **Long life, efficient high output LED light engines**
- **COLDVision light guide compatible**
- **Internal light feedback for stabilized light output for the most demanding machine vision applications**
- **Low power consumption (< 35 Watts)**
- **Digital & analog remote control**
- **Fast triggered strobe capabilities (max 1 kHz pulse rate, max pulse width 1msec, duty 10%)**
- **Improved immunity to vibration & shock**
- **Small footprint and world-wide, universally compatible power supply**
- **RoHS compliant, CE approved**

LLS 3-LED Light Source, A20970.1

Rear View: Universal power, multi-port, Ethernet, and RS-232 inputs



Advantages of Both LEDs and Fiber Optics

- **The LLS 3 enables the pairing of the long life, low power advantages of LEDs with the flexibility of fiber optic solutions and offers users 4 different modes of control interfaces – a continuous intensity control knob, Ethernet, RS-232, and an analog 0-5 V multi-port terminal.**
- **The auto-sensing inputs eliminate the need to switch manually between the modes and a user control lock-out can be implemented via the Ethernet and RS-232 supplied software.**

Characteristics

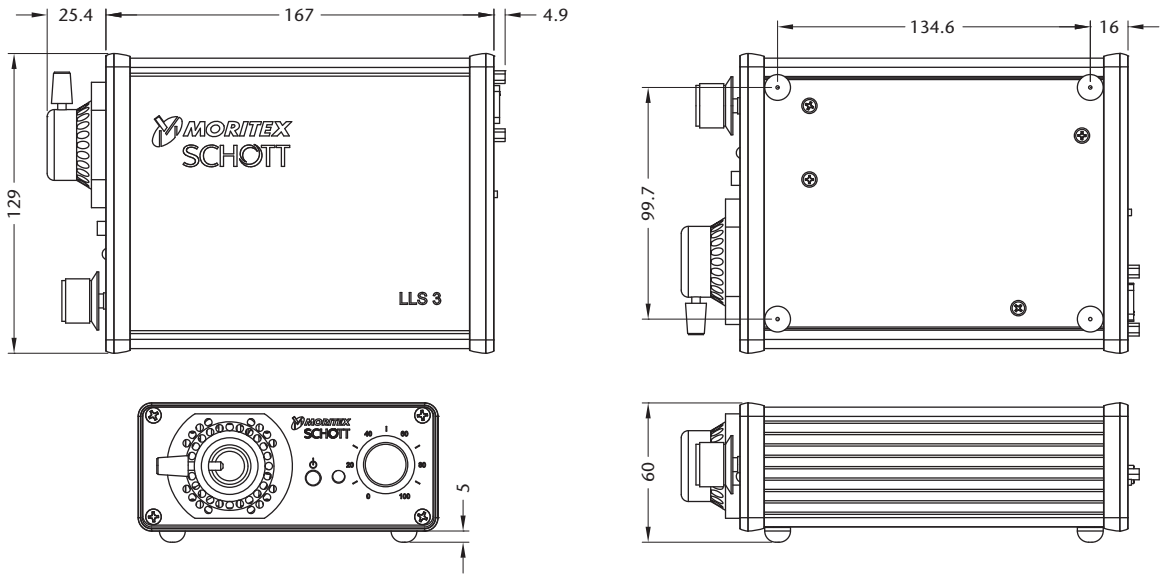
Dimensions	Length 197 mm (7.75 in) Width 129 mm (5.08 in) Height 63 mm (2.48 in)
Weight	862 grams (1.9 lbs)
Operating Temperature	5˚C (41˚F) to 40˚C (104˚F)

Option

Nosepiece Adapter

	Model
MORITEX Lightguides	LLS-LG-MTX
MegaLight	LLS-LG-MEGA

LLS3 - LED Light Source



Part Number [1]	Color	Wavelength (nm)	Color Temperature	Light Output [2]
A20970	Red	625	----	> 120 lm
A20970.1/6000	Cool White	----	~6,000 K	> 550 lm
A20970.1/3100	Warm White	----	~3,100 K	> 300 lm
A20970.2	Green	525	----	> 100 lm
A20970.4	Blue	470	----	> 40 lm
A20955	Mounting Bracket			

*Light output specifications are measured with a 1 m long, 13 mm diameter bundle (A08051.40 bundle)
The light output specification is the typical output and actual output may vary.
* Customer must specify power cord style when ordering

Next Generation LED Light Source

LSX (Available Fall 2015)

- Same compact, small footprint as previous models; 100% backwards compatible
- Upgraded light engine for increased light output, > 1.5X for cool white (6000 K) model
- Revamped, robust internal design for durability
- Improved connectivity and remote communication
- Added user-friendly features such as browser GUI control, definable user access, & system diagnostics
- Available in cool & warm white, red, green, & blue as well as UV, IR, and multi-wavelength made-to-order models

DCR® III Light Source

150 W CSA UL CE

DC regulated 150 W halogen light source provides intense, cool illumination.

DCR® III Light Source with EKE lamp, A20800

- **DC-regulated light source limits light fluctuation to ± 0.5% due to line voltage variation**
- **Universal input voltage (90 to 265 VAC), detachable IEC cord**
- **Current limiting – protects the unit from over heating due to defective and aging bulbs**
- **Transient protection – allows remote location of bulb**
- **Lamp change indicator light - LED located on front panel changes from green to red when lamp requires replacement**
- **Soft start "lamp saver" circuitry**
- **IR filter for cool illumination**
- **Solid state dimmer control for continuous dimming**
- **Interchangeable Modulamp Units offer 2 lamp positions to maximize individual lamp efficiencies**
- **Choice of three, 150 watt halogen lamps - EKE, EJA and DDL**
- **Built-in 9-pin connector for analog remote control or RS-232 connection (A20601)**
- **Low housing temp – slightly above ambient, quiet fan cooling**
- **CSA certified to UL spec, CE compliant to low voltage and EMC directives**

DCR® III Light Source Models

Part No.	Description
Standard Light Sources with US Power Cord Included	
A20800	with EKE Lamp
A20800.1	with EJA Lamp
A20800.2	with DDL Lamp
Light Source without Modulamp Unit and US Power Cord Included	
★ A20801	No Lamp – Power Supply Only
Standard Light Sources EU Version - No Power Cord Included	
A20820	with EKELamp
A20820.2	with DDL Lamp

★ Made-to-order products.

EKE, DDL, and EJA lamps and Modulamp units can be purchased separately.

Options

- **Mechanical shutter**
- **Wired, manual remote control and RS-232 connection**
- **Infinite setting, twelve blade iris diaphragm version available to reduce intensity while maintaining color temperature**

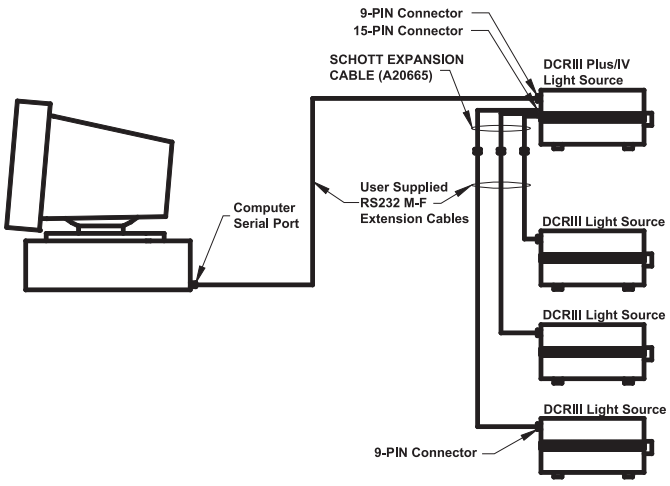
DCR® III Plus Light Source

150 W CSA UL CE

Includes all the standard features of the DCR® III plus a built-in RS232 interface providing intense, cool illumination via remote control.

DCR® III Plus Light Source , A20870

- **Remote controllable using built-in integrated RS232 interface**
- **Designed to control up to three additional DCR® III units via a built-in 15-pin connector (Expansion cable and DCR® III light sources sold separately)**
- **Automatically restores user settings on power up**
- **Enhanced communications available by embedding error checking codes in command strings**
- **Easy programmability with simple command structure**



Note: If the intensity control knob is turned to the R (Remote) position, lamp intensity control is switched to the RS232 interface. Front panel intensity control will always override the remote intensity control. Remote control of attached DCR® IIIs is dependent on each individual unit's setting, which should be in R (Remote) position for remote control.

DCR® III Plus Light Source Models

Part No.	Description
Standard Light Sources US Power Cord Included	
A20870	with EKE Lamp
★ A20870.1	with EJA Lamp
A20870.2	with DDL Lamp
Standard Light Sources EU Version - No Power Cord Included	
A20875	with EKE Lamp
★ A20875.1	with EJA Lamp
A20875.2	with DDL Lamp
Expansion Cable	
A20665	Triple Cable with Plug, 12"

★ Made-to-order products.

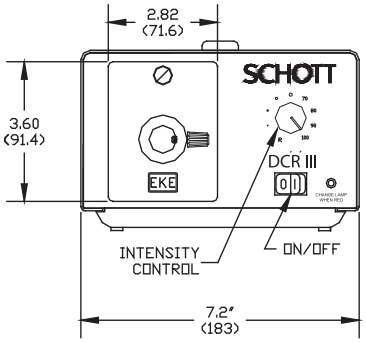
EKE, DDL, and EJA lamps and Modulamp units can be purchased separately.

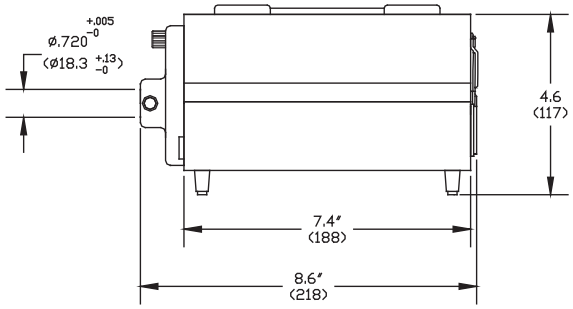
Options

- **Mechanical shutter**
- **Infinite setting, twelve blade iris diaphragm version available to reduce intensity while maintaining color temperature**
- **Expansion cable**
- **Remote light source**

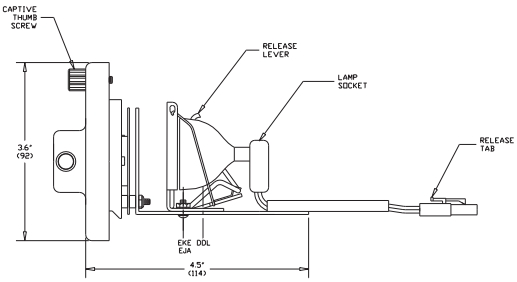
DCR III / DCR III Plus Light Source

Dimensions in ( ) are in mm

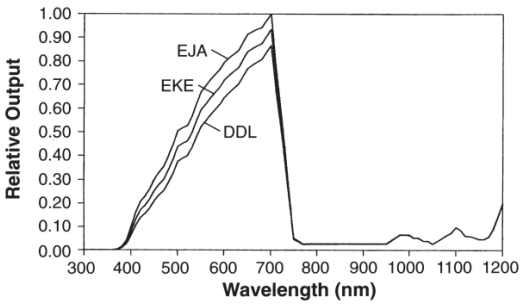




Input: 115/230 VAC – 50/60 Hz, Output: 0–20.5 VDC



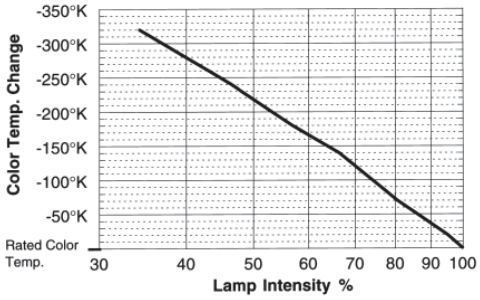
Spectral Curves w/Interference IR Filter



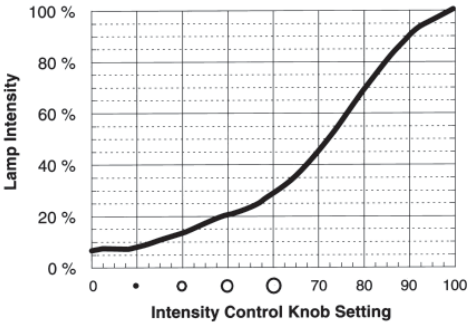
Modulamp... SCHOTT Innovation! Two positions optimize light intensity output, depending on the lamp in use. Entire housing is interchangeable for quick setup.

Choice of Lamps.. SCHOTT Versatility! Three different bulbs (EJA, EKE, DDL) offer light intensity and color temperature options to maximize productivity and accuracy.

Color Temperature Change vs. Lamp Intensity



Lamp Intensity vs. Intensity Control Knob Setting



Note: If the intensity control knob is turned to the R (Remote) position, lamp intensity control is switched to the rear 9-pin connector. Front panel intensity control will always override the remote intensity control.

Power Supply Specifications	
Rated Power Output	150 Watts
Output Voltage	0.0, 0.5 to 20.5 VDC
Input Voltage Rating, 50/60 Hz.	90 to 265 VAC
Power Factor Correction @ 230 VAC, 50 Hz.	> 0.99, < 4°
Hold-up Time, Nominal AC Input, Full Load	8.3 milliseconds
Line Regulation, Over Entire Input Range	±0.5%
Current Limit Set Point	8.5 Amps
Temperature Range : Operating	0˚C to 45°C
Storage	-25˚C to 85°C
Relative Humidity, Non-condensing	5% to 95%

* Note: Spectral curves identical for all models

DCR® IV Light Source

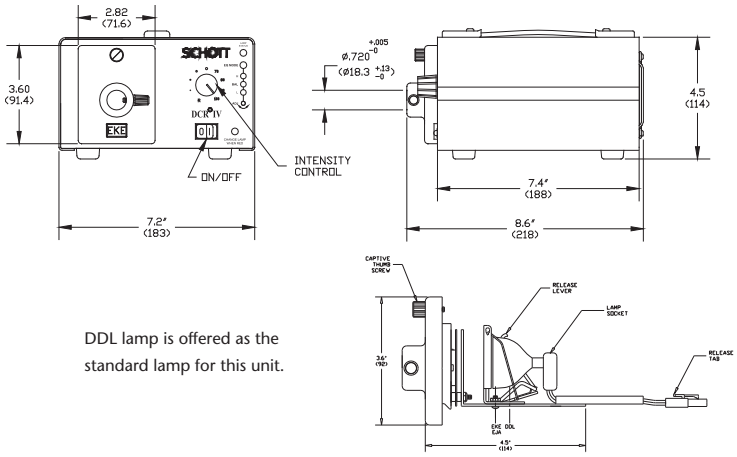
150 W CSA UL CE

- **Stable output over the life of the lamp, minimized lamp to lamp variation**
- **All DCR® III Plus Light Source features including of the including control of up to three additional DCR® III light sources via an expansion cable (sold separately)**
- **Remote controllable using integrated RS232 interface, easy to use front panel controls for calibration and intensity control**
- **Indicator LED's located on the front panel show lamp intensity is stabilized**
- **Flexible - Two configurations available:**
  - **A. DCR® IV used with a reference Modulamp Unit and standard light guide maintains DDL lamp output at ±2% over the lamp life and ±8% lamp to lamp**
  - **B. For greater control, use the DCR® IV with integrated reference bundle light guides (custom item) to maintain DDL lamp output and lamp to lamp variation within ±1%**

DCR® IV Light Source with DDL lamp, A20890

DCR® IV Light Source

Dimensions in ( ) are in mm



DDL lamp is offered as the standard lamp for this unit.

Performance Specifications	
Light Output with Reference Modulamp Unit	±2%
Light Output with Independent Reference Bundle	±1%
Lamp to Lamp Variation with Reference Modulamp Unit	±8%
Lamp to Lamp Variation with Independent Reference Bundle	±1%
Power Supply Specifications	
Rated Power Output	150 Watts
Output Voltage	0.0, 0.5 to 20.5 VDC
Input Voltage Rating, 50/60 Hz.	90 to 265 VAC
Power Factor Correction @ 230 VAC, 50 Hz.	> 0.99, < 4°
Hold-up Time, Nominal AC Input, Full Load	8.3 milliseconds
Line Regulation, Over Entire Input Range	±0.5%
Lamp Type	DDL, Ushio or GE, 150 W Halogen Bulb
Current Limit Set Point	8.5 Amps
Temperature Range: Operating	0°C to 45°C
Storage	-25°C to 85°C
Relative Humidity, Non-condensing	5% to 95%

DCR® IV Light Source Models

Part No.	Description
Standard Light Sources US Power Cord Included	
★ A20890	Integrated Equalizer (complete with Reference Modulamp assembly and DDL Lamp). (Standard fiber)
★ A20891	Integrated Equalizer (complete with Modulamp assembly and DDL Lamp. Does not include reference bundle). (Custom Fiber)
Standard Light Sources EU Version - No Power Cord Included	
★ A20895	Integrated Equalizer (complete with Reference Modulamp assembly and DDL Lamp).

★ Made-to-order products.

DDL lamp and Modulamp units can be purchased separately.

Options

- **Mechanical shutter**
- **Infinite setting, twelve blade iris diaphragm unit available to reduce intensity while maintaining color temperature (Cannot be used with reference Modulamp)**
- **Expansion cable**

Universal Light Source

CSA UL CE

For applications where DC power is already available and the need for an economical light source exists.

Universal Light Source, A20855

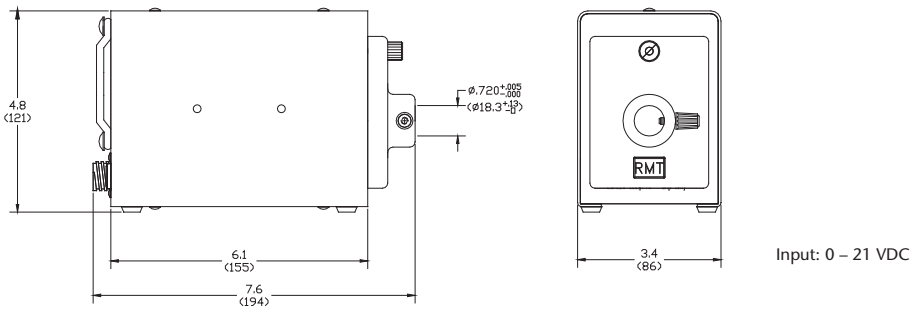
- **Many of the same functional features as the Remote Light Source Kit**
- **Includes Modulamp, all connectors**
- **Power cable not included**
- **CE compliant to low voltage directive**
- **Will accept any MR-16 halogen lamp up to 150W/21V**

Light Source Accessories

Part No.	Description
A20855	Universal Light Source

A20855

Dimensions in ( ) are in mm



Input: 0 – 21 VDC

ACE® Light Source

150 W CSA UL CE

Compact, rugged, AC halogen light source with solid state dimmer for variable light intensity and maximizing lamp life.

ACE® Light Source with EKE lamp, A20500

- **Solid state dimmer for continuous control zero to full intensity**
- **Heavy duty, grounded metal housing**
- **115V or 230V input voltage versions available**
- **IR interference filter for cool illumination**
- **Full illumination on .60" active diameter input ColdVision light guides**
- **Interchangeable Modulamp Units offer 2 positions to maximize individual lamp efficiencies**
- **Choice of three, 150 watt halogen lamps - EKE, EJA, and DDL for intense, uniform illumination**
- **Built-in thermal shut down**
- **Quiet fan cooling**
- **CSA approved to UL spec, CE compliant to low voltage and EMC directives**
- **Low housing temperature**
- **Detachable IEC cord**

Modulamp Unit with Iris Diaphragm

ACE® Light Source Models

115 Volt	230 Volt	Description
Standard Light Sources		
A20500	A20510	EKE Lamp
A20500.1	A20510.1	EJA Lamp
A20500.2	A20510.2	DDL Lamp
Light Source without Modulamp Unit		
★ A20500.115	★ A20510.230	No Lamp Power Supply Only

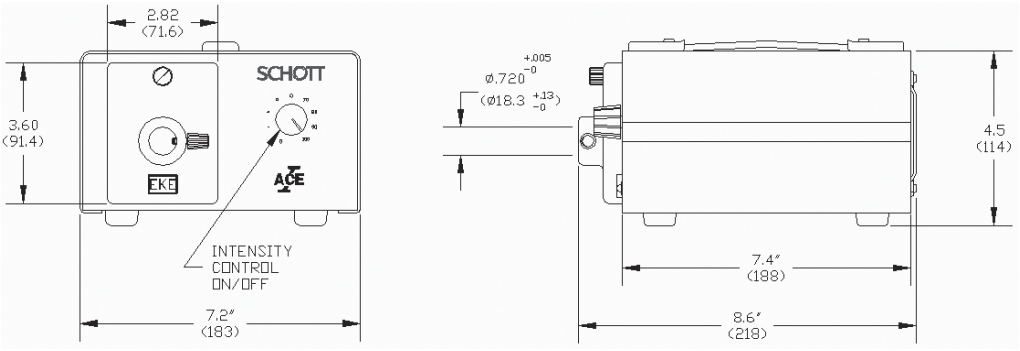
★ Made-to-order products.
EKE, DDL, and EJA lamps and Modulamp units can be purchased separately.

Options

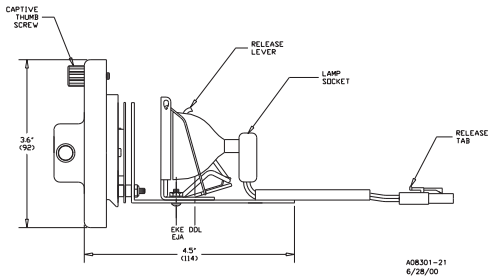
- **Private labeling available.**
- **Infinite setting, twelve blade iris diaphragm version available to reduce intensity while maintaining color temperature.**

ACE® Light Source

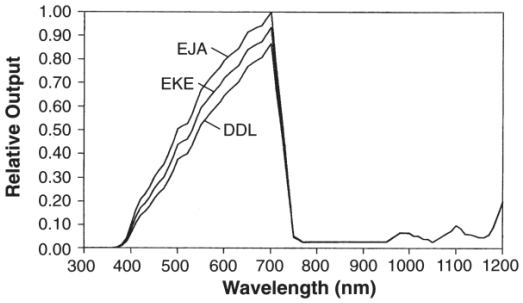
Dimensions in ( ) are in mm



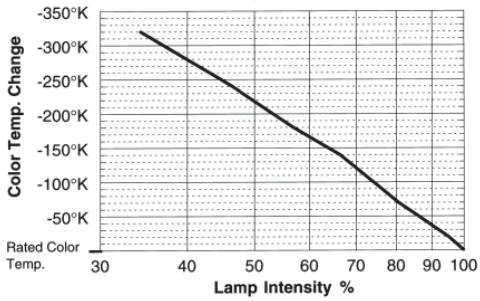
Input: 115 VAC/60 Hz, 230 VAC/50/60 Hz, Output: 0–21 VAC



Spectral Curves w/Interference IR Filter



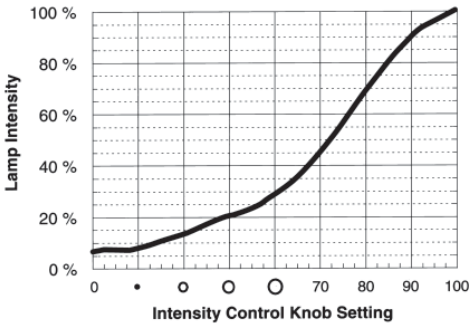
Color Temperature Change vs. Lamp Intensity



Modulamp... SCHOTT Innovation!
Two positions optimize light intensity output, depending on the lamp in use. Entire housing is interchangeable for quick setup.

Choice of Lamps.. SCHOTT
Versatility! Three different bulbs (EJA, EKE, DDL) offer light intensity and color temperature options to maximize productivity and accuracy.

Lamp Intensity vs. Intensity Control Knob Setting



Solid State Dimmer..SCHOTT Control!
Continuous intensity control for lamp life management.

Power Supply Specifications	
Power Consumption	190 Watts (nominal)
Output Voltage	0 - 21 VAC
Fiber Receptacle	0.72" (13.3 mm)
Input Voltage	115 VAC / 60 Hz
	230 VAC / 50/60 Hz
Temperature Range: Operating	0˚C to 50˚C

* Note: Spectral curves identical for all models

Halogen Lamps & Modulamp Assemblies

Lamp Features

- Use with ACE® Series and DCR® Series light sources
- 150 watt tungsten halogen bulbs: EJA, EKE and DDL types available
- The correct lamp for your light source is specified on the label located on the front of the Modulamp Unit
- See specifications on the next page

Modulamp Assembly Features

- Assures maximum light delivery to fiber optic components
- Use with all ACE® Series and DCR® Series light sources
- Full illumination on .60" (15 mm) active diameter input
- Interchangeable Modulamp Units offer 2 lamp positions to maximize individual lamp efficiencies
- Choice of three, 150 watt halogen lamps - EJA, EKE, DDL
- IR interference filter for cool illumination
- Iris version also available (made-to-order)

EJA, EKE and DDL Lamps

Modulamp Assembly, A08301


Iris Diaphragm, A08321, A08321.1, A08321.2

150 Watt Halogen Lamps

Part No.	Type	Description
A08110	EJA	21 V, 3350° K color temperature; Most intense, Rated 40 hrs, 500 hrs w/ a dimmer*
A08120	EKE	21 V, 3250° K color temperature; High output for most applications; Rated 200 hrs, 2000 hrs w/ a dimmer*
A08130	DDL	20 V, 3150° K color temperature; Most uniform output; Rated 500 hrs, 5000 hrs with a dimmer*

*Voltage reduced to 80% of full intensity.

Modulamp Assemblies

Part No. Type	Description
Standard (without lamp)	
A08301	Lampholder for EKE Lamp
A08301.1	Lampholder for E J A Lamp
A08301.2	Lampholder for DDL Lamp
Iris Diaphragm (without lamp) *	
A08321	Lampholder for EKE Lamp
A08321.1	Lampholder for E J A Lamp
A08321.2	Lampholder for DDL Lamp

* Made-to-order products

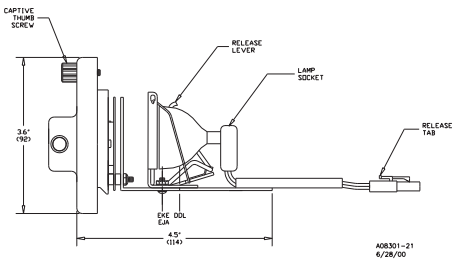

Lamp Socket

Lamp Socket

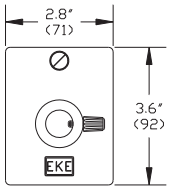
Part No.	Description
A29506	Lamp Socket for ACE® Series and DCR® Series light sources.

Halogen Lamps & Modulamp Assemblies

Dimensions in ( ) are in mm

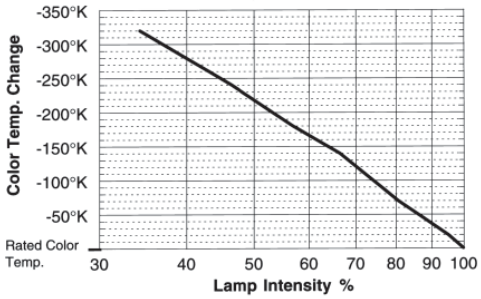


A08301, A08301.1 & A08301.2 - Modulamp Assemblies

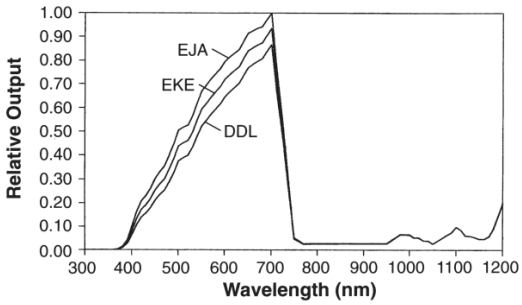


Front View of Modulamp Assembly

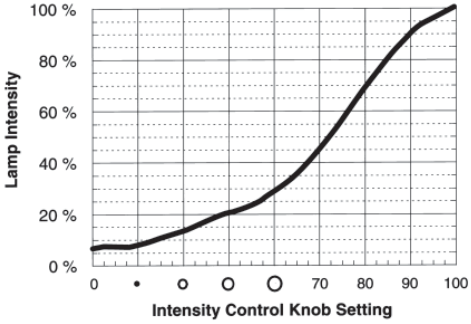
Color Temperature Change vs. Lamp Intensity



Spectral Curves w/Interference IR Filter

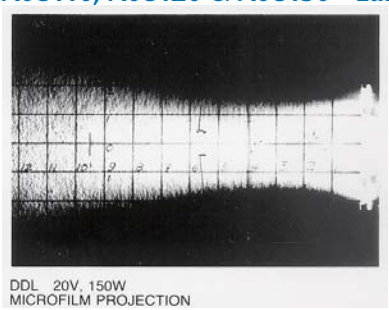


Lamp Intensity vs. Intensity Control Knob Setting

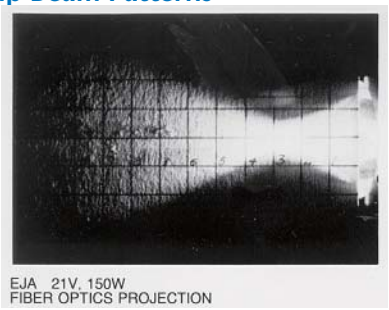


Note: If the intensity control knob is turned to the R (Remote) position, lamp intensity control is switched to the rear 9-pin connector. Front panel intensity control will always override the remote intensity control.

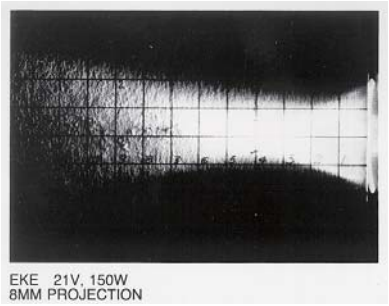
A08110, A08120 & A08130 - Lamp Beam Patterns



DDL 20V, 150W
MICROFILM PROJECTION



EJA 21V, 150W
FIBER OPTICS PROJECTION



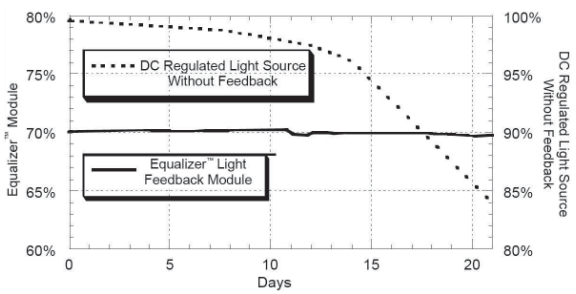
EKE 21V, 150W
8MM PROJECTION

Beam Patterns are Courtesy of GE

Lamp Specifications

Bulb Type	Voltage	Wattage	Lamp Base	Bulb Finish	Burn Position	Shape	Color Temp.	Filament	Lamp Fill	Lamp Life	Overall Length (mm)	Reflector Design	Reflector Size (mm)	Working Distance (mm)
EJA	21	150	GX5.3	Clear	Base/Down Horiz.	MR-16	3350	CC-6	Halogen	40 Hrs.	44.5	Dichroic	50.7	28.0
EKE	21	150	GX5.3	Clear	Base/Down Horz.	MR-16	3250	CC-6	Halogen	200 Hrs.	44.5	Dichroic	50.7	44.5
DDL	20	150	GX5.3	Clear	Base/Down Horz.	MR-16	3150	CC-6	Halogen	500 Hrs.	44.5	Dichroic	50.7	194.5

Lamp Intensity vs. Time



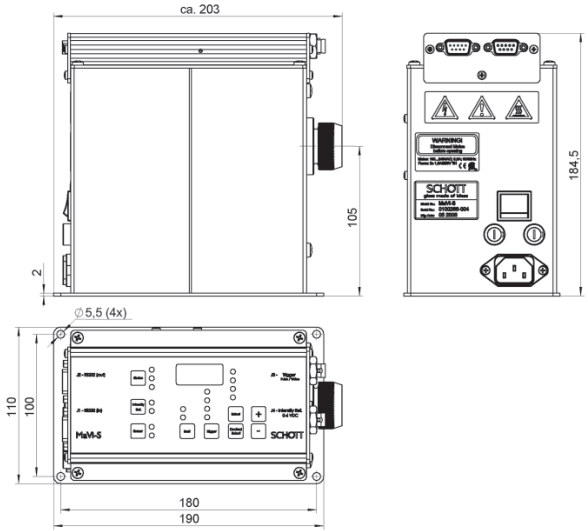
MaVi-S Light Source

High intensity xenon strobe light source for stop motion imaging.

- **Coupled with ColdVision light guides, the MaVi-S emits brief and intense light pulses that result in bright, clear and high-contrast images**
- **High speed applications, short flash times are required as well as adjustable delays to capture the required images and information**
- **Applications include wafer inspection, bottle inspection, matric code reading, and diamond quality control**
- **CE Aproved, ROHS compliant**

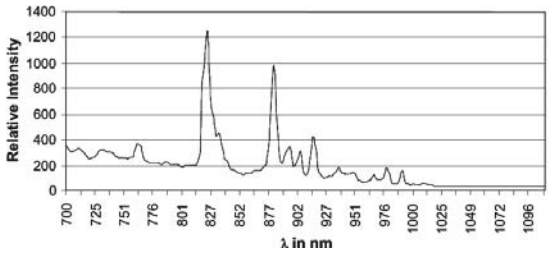
RS232 Interface

Dimensions in ( ) are in mm

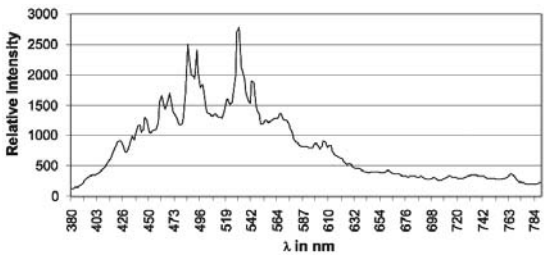


Technical Data	
Lamp type	Xenon Flashlamp
Maximum energy	Up to 2.16 J
Frequency range	1 Hz - 200 Hz
Flash duration	Approx. 6 µs
Pulse to pulse stability	2.5% from flash to flash with no loss of flashes
Electronic Data	
Intensity regulation	Via control panel computer (RS 232) or analog input
Computer interface	Control of up to 9 MaVi-S light sources
Burst function	Generation of several flashes by one trigger pulse
Power supply	100 V - 260 V. 50 Jz - 60 Hz
Power consumption	75 Watt
Fuses	1.6 A (slow blow)
Protection class	1 (protective grounding)
Electrical safety	IEC/EN 61010 and IEC/EN 6100
Ambient Conditions	
Operating temperature	0°C to 43°C
Storage temperature	- 40°C to 90°C
Relative humidity	Max. 80 %, non condensing
Housing	
Outer dimensions	110 mm x 200 mm x 180 mm
Weight	2 kg

IR Spectrum MaVi-S (without Filter)



Spectrum MaVi-S (without Filter)



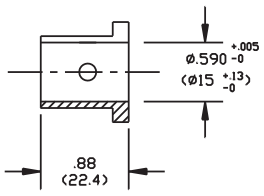
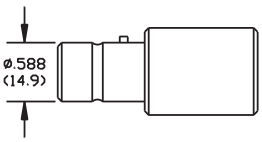
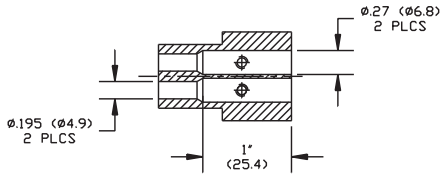
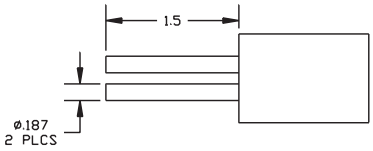
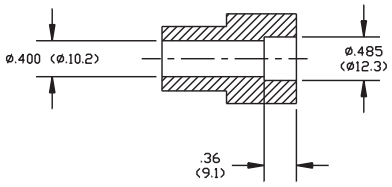
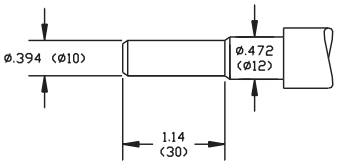
Input Adapters

For DCR® Series and ACE® Series Light Sources

SCHOTT provides a series of adapter bushings which fit into the DCR® Series and ACE® Series light sources.

The corresponding ferrule sizes they will accept, are shown below. The bushing attaches to the fiber bundle ferrule with a set screw. The bundle is then inserted into the light source receptacle. These adapters guarantee proper fiber bundle positioning in the focal plane of the lamp to receive the maximum light output.

Input Adapters

PartNumber	Adapter	Ferrule
★ A08009		Volpi 
A08010		
A08013		SCHOTT KL Series 

★ Made-to-order products.

Dimensions in ( ) are in mm

Light Guides
Universal Ringlights

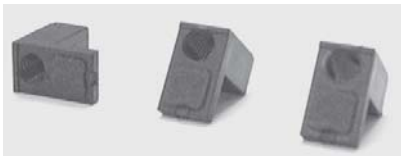
For 33 to 81 mm Objective Diameters

SCHOTT ringlights emit intense, uniform, and shadow-free illumination for Machine Vision and Microscopy applications.

Universal Ringlight A08600 (classic clamp syle)

Universal Ringlight, A08600.1 (new clamp style)

- **Fits microscope and camera objectives from 33 to 81 mm with appropriate clamps**
- **Working distance is 1.5″ to 6″ (38 to 152 mm)**
- **33″ (838 mm) bundle length on all models**
- **Two unique clamping/mounting systems for precise positioning, most ringlights fit directly onto the microscope and camera objective without adapters**
- **Inputs fit all ColdVision light sources; ringlights can be used with other manufacturer's continuous light sources although adapters may be necessary**
- **Use ringlights with our dichroic color filters, diffusers, polarizer/analyzers, and reflector rings for alternative lighting effects**
- **Vertical exit bundle option increases work space and prevents the bundle from interfering with surrounding objects**
- **Modified standard and custom ringlights are also available for your unique requirements**
- **ESD (Electro Static Discharge) option is available on custom basis**


Anti-Slip Ringlight Clamps, A08614


Anti-Slip Ringlight Clamps, A08601


Anti-Slip Ringlight Clamps, A08602

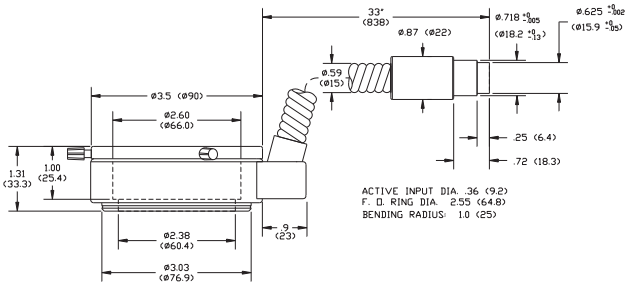
Amti Slip Ringlight Clamps:
For accurate positioning when using fiber optic components in industrial and laboratory environments.

Universal Ringlights

Dimensions in ( ) are in mm

: This product is manufactured with glass fiber. Not for use in cable/hose carrier. Call MORITEX to discuss moving cable/hose carrier applications.

Ringlight Input: Black Anodized Aluminum or Conductive Finish
Bundle Sheathing: PVC Covered Metal Tubing or Stainless Steel
Working Distance: 1.5" to 6" (38 to 152)

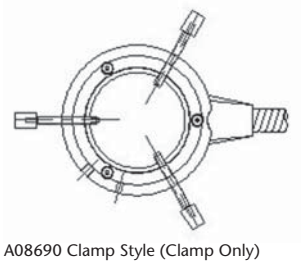


A08620 - 47 mm / 62 mm Ringlight with vertical exit (classic clamp)

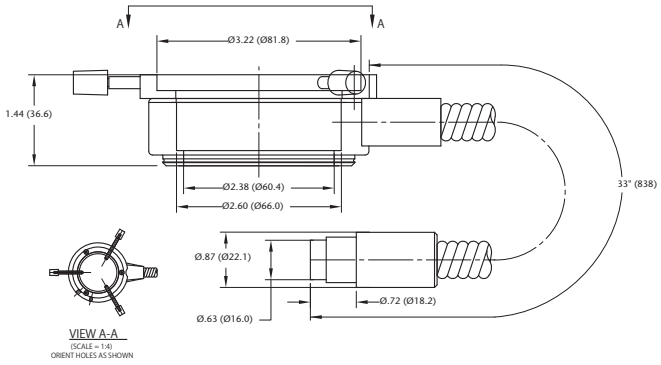
Clamp(s) for A08611 Clamp Ring, A08600 and A22000 Ringlights and A08614, Set of 3 Clamps 1.8 / 2.4" (47/62)

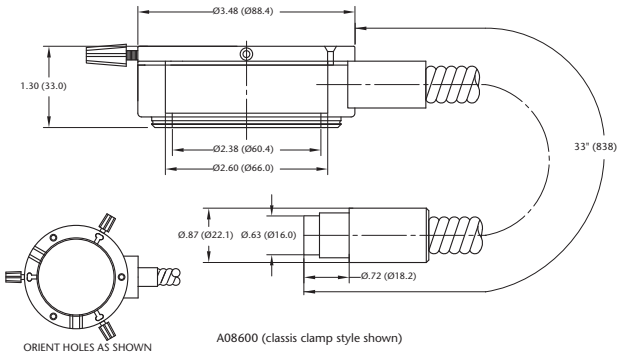
Clamp(s) for A08612 Clamp Ring, A08603 Ringlight and A08601, Set of 3 Clamps 1.3 / 1.8" (33/46)

Clamp(s) for A08613 Clamp Ring, A08604 Ringlight, and A08602, Set of 3 Clamps 2.4 / 3.2" (62/81)



A08690 Clamp Style (Clamp Only)





A08600 (classis clamp style shown)

A08600 Clamp Style

Universal Ringlight

Part No.	Standard Exit	Vertical Exit	Minimum Working Distance	Objective diameter Camera and Microscope	Mounting	Polarizer/ System Analyzer
A08600	X		1.5" - 6"	47 to 62 mm	Clamps (classic)	A08615
A08600.1	X		1.5" - 6"	47 to 62 mm	Clamps (new)	A08615
A08620		X	1.5" - 6"	47 to 62 mm	Clamps (classic)	A08615
A08601.1	Ringlight Screw					

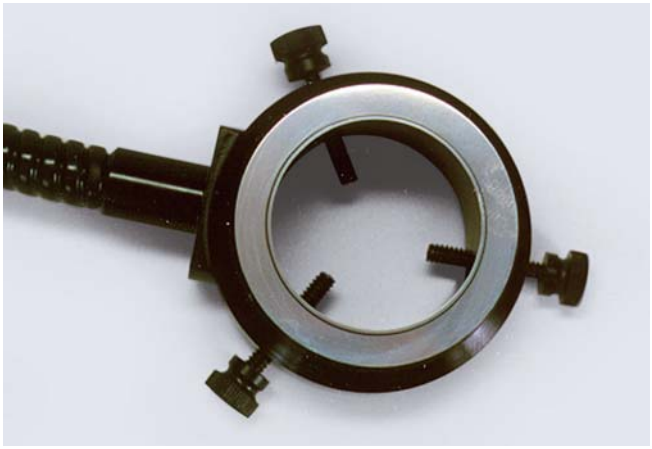
Holders, Clamp Rings, and Anti-slip Pads

Part No.	Description
A08614	Anti-slip Ringlight Clamps for ringlight models A08600, A08620. (3 clamps in package) (47 mm to 62 mm)
A08601	(33 mm to 46 mm)
A08602	(62 mm to 81 mm)

Midi, Mini and Maxi Ringlights

For 19 to 53 mm Objective Diameters

SCHOTT ringlights emit intense, uniform, and shadow-free illumination for Machine Vision and Microscopy applications.



Mini Ringlight, A08650

Mini Features

- Fit microscope and camera objectives from 19 to 32.5 mm
- Working distance is .5″ to 4″ (13 to 102)

Midi Features

- Fit microscope and camera objectives from 38 to 53 mm
- Working distance is 1.25″ to 3.5″ (32 to 89)*

Midi & Mini Ringlight Features

- Thumbscrew mounting system for precise positioning, ringlights fit directly on most microscope and camera objectives without adapters
- See the accessories section of the catalog for adapters
- Vertical exit bundle option increases work space and prevents the bundle from interfering with surrounding objects

4″ Ringlight, A08700

4″ Ringlight

- Fiber ring diameter is 4.5″ (114*)
- Working distance ranges from 2″ to 8″ (51 to 203)
- Light exits at 40 degree angle for specular-free illumination
- Randomized fiber bundle maximizes uniformity

8″ Ringlight, A08710

8″ Ringlight

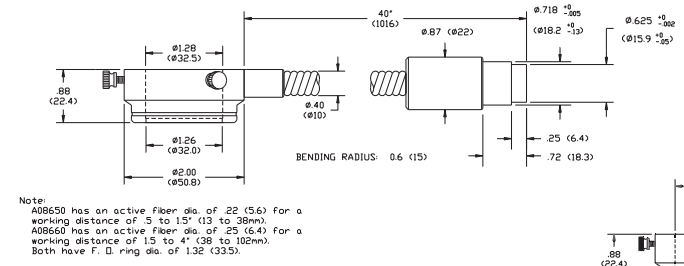
- Low Profile ringlights for working distances from 2.5″ to over 4.5 (64 to 114)
- #1/4-20 mounting threads in the coupler (front and top) and the fiber bundle is protected with stainless steel tubing

Midi, Mini and Maxi Ringlights

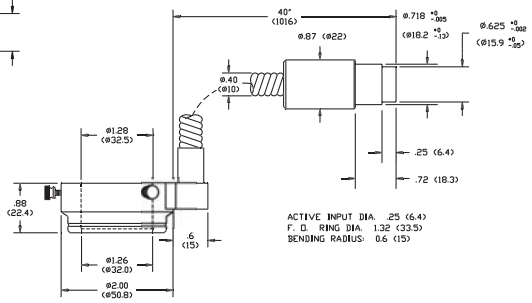
Dimensions in ( ) are in mm

Warning : This product is manufactured with glass fiber. Not for use in cable/hose carrier. Call MORITEX to discuss moving cable/hose carrier applications.

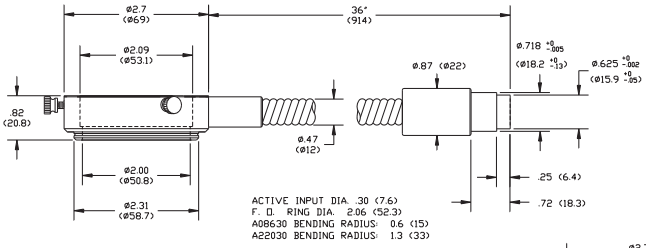
Ringlight Input: Black Anodized Aluminum or Conductive Finish
Bundle Sheathing: PVC Covered Metal Tubing or Stainless Steel



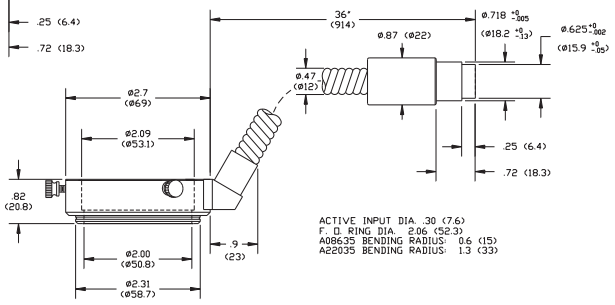
A08650 - A08660 - 19 / 32.5 mm Ringlights



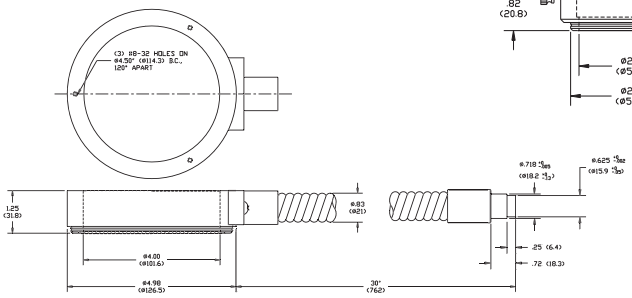
A08670 - 19 / 32.5 mm Ringlight with Vertical Exit



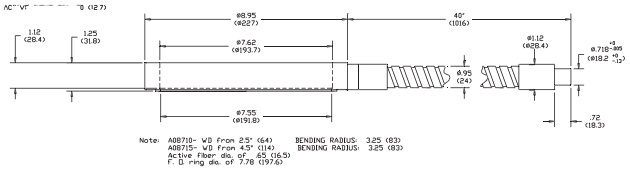
A08630 – 38 / 53 mm Ringlight with Standard Exit



A08635 – 38 / 53 mm Ringlight with Vertical Exit



A08700 4" Ringlights



A08710 8" Ringlights

Maxi Ringlights

Part No.	ID	OD	Working Distance	Bundle Length	Polarizer/ Analyzer
A08700	4" (102)	9.98" (127)	2" - 8" (51 - 203)	30" (762)	A08705
★ A08710	7.5" (191)	8.95" (227)	2.5" - 4.5" (64 - 114)*	40" (1016)	★ A08712

★ Made-to-order products.

Use ringlights with our Dichroic color filters, diffusers, and polarizers for alternative lighting effects. Maci Ringlights will require an adapter, part number A08931, due to the size of the input.

Mini Ringlights

Part No.	Standard Exit	Vertical Exit	Working Distance	Polarizer/ Analyzer
A08650	X		.5" - 1.5" (13 - 38)	A08632
A08660^	X		1.5" - 4" (38 - 102)*	★ A22032
A08670^		X	1.5" - 4" (38 - 102)*	A08627
Midi Ringlights				
A08630	X		1.25" - 3.5" (32 - 89)*	A08632
A08635		X	1.25" - 3.5" (32 - 89)*	A22032

★ Made-to-order products.

^ 29% more fiber than A08650 ringlight

*Dimensions in ( ) are in mm

* ESD (Electro Static Dischage) option is available

Ringlights, 66mm / 58mm

- **33" (838) bundle length on all models, working distance is 1.5" to 6" (38 to 152)**
- **ESD ringlights are made conductive by replacing the black anodized finish with a conductive finish and the PVC metal tubing with stainless steel tubing; each ringlight is checked for conductivity from inner body to light source adapter (Available custom)**
- **Thumbscrew clamping/mounting system for precise positioning (except for model number A22040), ringlights fit directly onto most microscope and camera objectives without adapters**
- **Input fits all ColdVision light sources; Ringlights can be used with other manufacturer's continuous light sources (Adapters may be required)**

Basic 66 mm Ringlight, A08625

- **Use ringlights with our dichroic color filters, diffusers, polarizer/analyzers and reflector rings for alternative lighting effects**
- **Modified standard and custom ringlights are also available for all your unique requirements**

Tapered Ringlight with Retaining Ring, A22040

For intense, uniform, and shadow-free illumination

- Ringlights fit 66 mm microscope and camera objectives, with options such as a tapered inner-body ringlight for the Nikon SMZ 645/600 microscopes (See A22040 model)
- Clamp rings for the Universal ringlights also fit the 66 mm ringlights for use with a different diameter microscope objectives or with the Ringlight Holder (See the Support Apparatus for Ringlights section)

Ringlights, 66mm

Part No.	Standard Exit	Vertical Exit	ESD	Objective Diameter	Mounting System	Polarizer/ Analyzer
A08625	X			66 mm	Thumbscrew	A08615*
A08680		X		66 mm	Thumbscrew	A08615*
Custom			X	66 mm	Thumbscrew	N/A

* If using the A08626 adapter, use A08627 polarizer/analyzer

Designed to fit Nikon SMZ and Leica S4E and S6E microscopes

- Vertical exit bundle increases work space and prevents the bundle from interfering with surrounding objects
- Retaining ring mounting for the A22040 ringlight offers secure positioning

Ringlights, 58mm

Part No.	ESD	Objective Diameter	Mounting System	Polarizer/ Analyzer
A22040*		Nikon SMZ 645/660	Retaining Ring	★ A22042
A22050		Leica S4E/S6E	Thumbscrew	★ A22052
A22060	X	Leica	Thumbscrew	Custom

★ Made-to-order products.

*The A22040 ringlight has a tapered ring diameter to use with SMZ 645/660 microscope.

A retaining ring is used for mounting instead o a thumbscrew

Ringlights, 66mm and 58mm

Ringlight Input: Black Anodized Aluminum or Conductive Finish
Bundle Sheathing: FPVC Covered Metal Tubing or Stainless Steel
Working Distance: 1.5" to 6" (38 to 152)

Vertical Exit 66 mm Ringlight, A08680

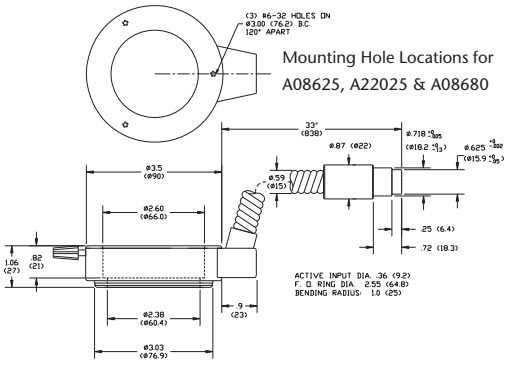
66 mm Ringlight, A08625

Nikon Compatible Ringlight, A22040

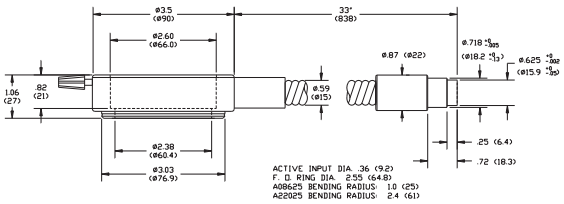
Ringlights 66mm

Dimensions in ( ) are in mm

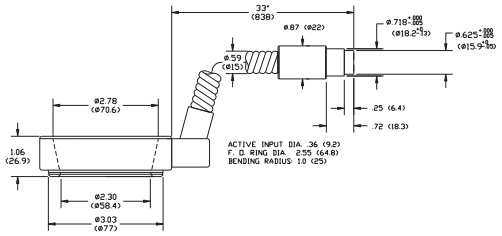
Warning : This product is manufactured with glass fiber. Not for use in cable/hose carrier. Call MORITEX to discuss moving cable/hose carrier applications.



A08680 - 66 mm Ringlight with Vertical Exit



A08625 - 66 mm Ringlights



A22040 - Nikon SMZ 645/660 Ringlight with Vertical Exit and Retaining Ring

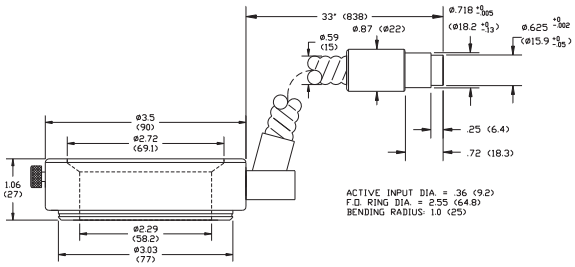
Ringlights 58mm

Leica Compatible Ringlight, A22050

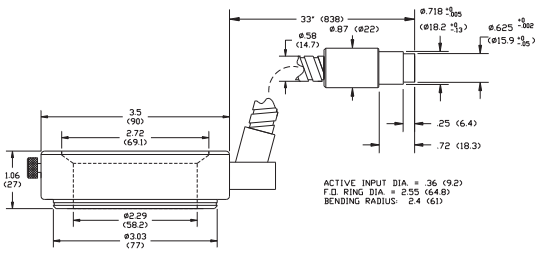
ESD 66mm Ringlight, A22060
(Made-to-order product)

Ringlights 58mm

Dimensions in ( ) are in mm



A22050 - Ringlight with Vertical Exit for Leica S4E/S6E Microscopes



A22060 - ESD Ringlight with Vertical Exit for Leica S4E/S6E Microscopes

Darkfield Ringlights

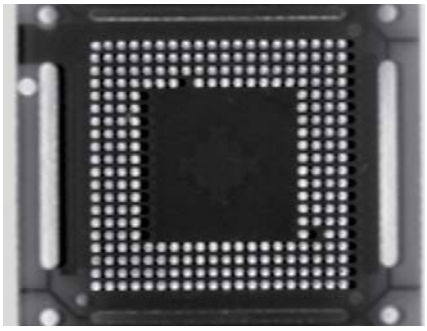
Unique parabolic reflector ring creates a radial “light sheet” for oblique lighting effects.

Darkfield Ringlight, A22780

- **Eliminates need for a quad lightline and mounting hardware to create similar lighting effects**
- **Randomized bundle creates extremely uniform light output**
- **Remove the reflector ring to create a long working distance ringlight**
- **Can be used with continuous or strobe light sources, standard input adapter accepts the full range of all our color filters**
- **Three #8-32 threaded mounting holes in the top of the ringlight body facilitate fixturing**

Typical Applications

- **BGA (Ball Grid Array) inspection**
- **Illuminating scratches on highly reflective surfaces**
- **Water contamination inspection**



Actual image of BGA (Ball Grid Array) chip illuminated by a Darkfield ringlight clearly identifies where solder balls are missing.

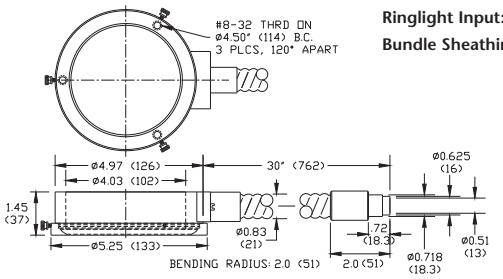
Darkfield Ringlights

Part No.	Standard Exit	ID	OD	Working Distance	Bundle Length
A22780	X	4.03" (102)	5.25" (134)	0" - .25" 0"-6.35)	30" (762)

*Dimensions in ( ) are in mm

Darkfield Ringlight

Dimensions in ( ) are in mm



Ringlight Input: Black Anodized Aluminum
Bundle Sheathing: PVC Covered Metal Tubing or Stainless Steel

A22780
Darkfield Ringlight

Warning : This product is manufactured with glass fiber. Not for use in cable/hose carrier. Call MORITEX to discuss moving cable/hose carrier applications.

Diffuse Dome

For use with 4″ Fiber Optic Ringlight A08700

Diffuse Dome A25045 with Ringlight, A08700 (Ringlight not included)

Diffuse dome to eliminate specular reflection on shiny surfaces.

Standard Features

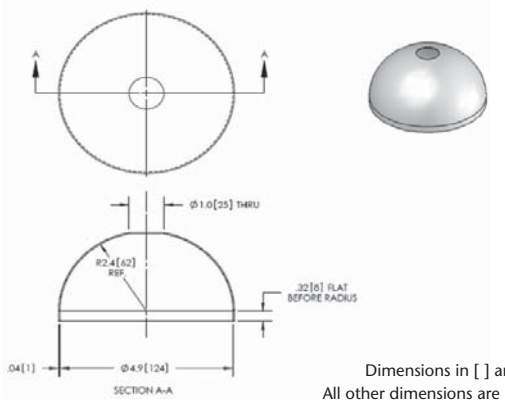
- **Eliminates specular glints and/or shadows on reflective parts**
- **Used with 4″ diameter ringlight A08700**
- **4.9″ (124 mm) diameter x 2.70″ (69 mm) height (without ringlight)**
- **Viewing aperature: 0.98 (25 mm)**

Typical Applications

- **Data matric code reading, OCR/OCV**
- **Semiconductor wafer inspection**
- **Foil inspection**
- **Can or bottle inspection**

Diffuse Dome

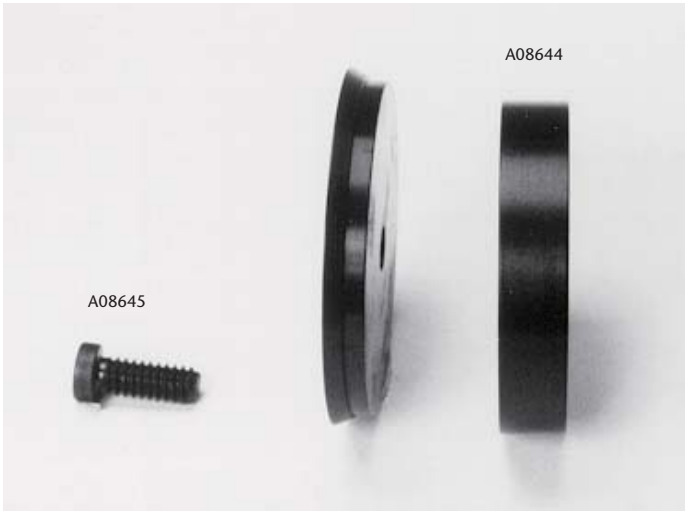
Dimensions in ( ) are in mm



Dimensions in [ ] are mm.
All other dimensions are Inches.

Darkfield Illuminator / Ringlight Adapters

Ringlight adapters for microscope objectives and darkfield lighting.



Darkfield Illuminator, Adapter, A08645 and Spacer Ring, A08644

- **Fiber optic full annular ring configurations**
- **Dovetail adapters for a variety of microscopes attach to slide the illuminator into place under the microscope stage and avoid interference (See chart on left for adapter specifications)**
- **Please note that a spacer ring, A08644, is required for the A08645 model adapter**
- **Light exits at a nominal 20° horizontal angle and will illuminate a 1" (25.4)* diameter area**
- **Ringlight comes with a fixed size aperture to shield optic from light**
- **Working distances from .10" (2.5) to .38" (9.7)**
- **Optional made-to-order iris aperture allows adjustment of the darkfield spot size for light sensitive applications**

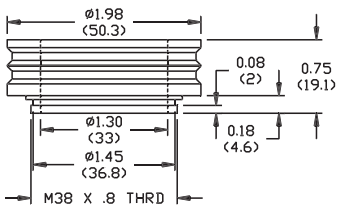
Darkfield Illuminator & Accessories

Part No.	Description
★ A08644	Darkfield Spacer Axio 2 for A08645 Adapter
Dovetail Adapters	
★ A08645	Dovetail Adapter for Zeiss Axioplan (see A08644)
★ A08646	Dovetail Adapter for Leitz Laborlux, DMR
★ A08647	Dovetail Adapter for Olympus
★ A08649	Dovetail Adapter for Zeiss Axioskop

★ Made-to-order products.

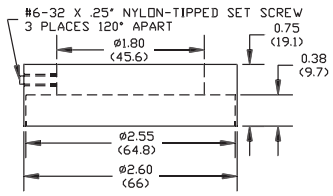
Ringlight to Microscope Adapters

A08606

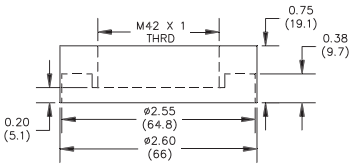


A08607

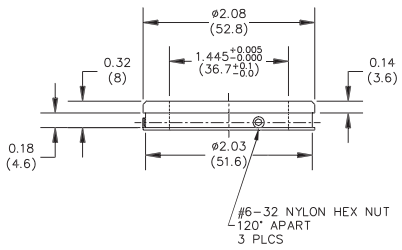
Dimensions in ( ) are in mm



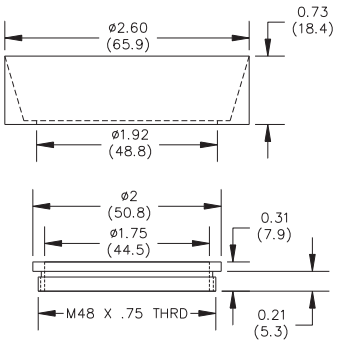
A08608



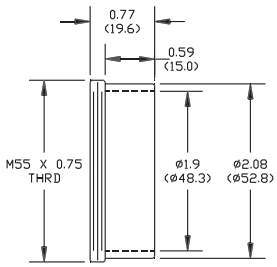
A08609



A08626



A08628



Ringlight Adapters

Part No.	Ringlight	Microscope	Mounting
A08606	A08600	B&L Zoom 4	Screws into Objective
A08607	A08625	Leica SZ4/SZ6 with auxiliary lens	Three Thumscrews
A08608	A08625	Leica SZ4/SZ6 without auxiliary lens	Screws into objective
A08609	A08630	Leica SZ7	#6 - 32 Hex Set Screw
A08626	A08625	Olympus SZ	Screw-on Retaining Ring
A08628	A08600, A08620	SMZ 645/660	Screws on Objective

Note:Adapters are machined to order. Pricing and Availability subject to market conditions.
Drawings are available.

Ringlight Polarizers & Analyzers

The polarizing effect enhances contrast on highly reflective surfaces for Microscopy and Machine Vision Applications.

Polarizer/Analyzer, A08615

- **Polarizer/analyzer combinations reduce reflection and glare**
- **The A08615 and A08632 polarizers were designed to easily snapfit onto the ringlight, the analyzer is dropped through the top of the ringlight and positioned on top of the polarizer**
- **To prevent the polarizer/analyzer from moving due to vibration, a knurled thumb-screw locks the polarizer assembly into position which also makes the holder easier to adjust**
- **To further prevent vibration, a set-screw stops the polarizer disk from turning within the assembly, features are found on polarizer / analyzer model numbers A08615 and A08627**

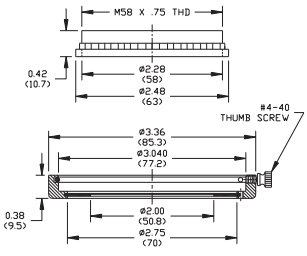
Polarizers & Analyzers

Part No.	Corresponding Ringlights
A08615	A08600, A08620, A08625, A08680, A08600.1
A08627	A08625 & Olympus Adapter, part number A08626
A08632	A08630, A08635
A08652	A08650, A08660, A08670
A08705^	A08700

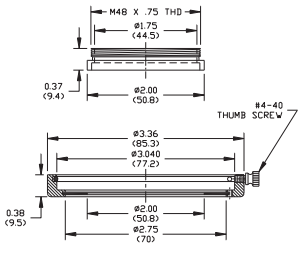
^Polarizer ring only. User must supply analyzer.

Ringlight Polarizers & Analyzers

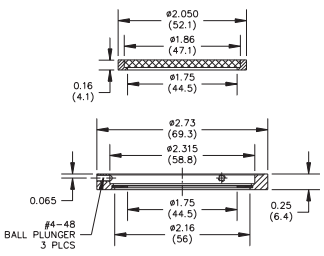
Dimensions in ( ) are in mm



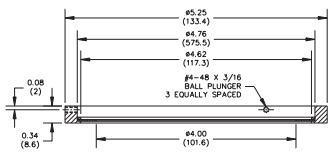
A08615
Polarizer/Analyzer



A08627
Polarizer/Analyzer



A08632
Polarizer/Analyzer



A08705
Polarizer/Analyzer

Ringlight Reflector Rings / Ringlight Accessories

For use with Universal and 66mm Ringlights

Reflector ring illuminates scratches on reflective surfaces.

- **The A08616 reflector ring fits the Universal and 66 mm Series ringlights**
- **Two separate parts are included, the black anodized retaining ring and the mirror polished reflector ring, the reflector ring drops inside the retaining ring which snap-fits onto the ringlight**

Reflector Ring, A08616

Ringlight Reflector Rings

Part No.	Ringlights
A08616	A08600, A08603, A08604, A08620, A08625, A08680, A08600.1

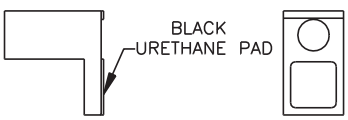
To fix ringlight position

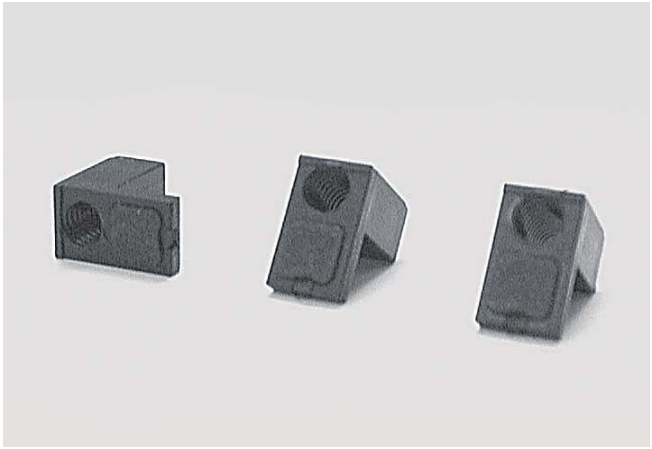
Ringlight Clamp Accessories

Dimensions in ( ) are in mm

Clamp(s) for
A08611 Clamp Ring, A08600 and A22000 ringlights and A08614,Set of 3 Clamps
1.8 / 2.4" (47/62)

A08614
Clamps with Anti-slip Pads
(Set of 3)





Anti-Slip Ringlight Clamps, A08614

Clamp Accessories

Part No.	Description
A08614	Anti-slip Ringlight Clamps for ringlight models A08600, A08620. (3 clamps in package)

Single Bundles

Flexible bundles give the user versatility when routing and positioning light.

- **Variety of standard sizes with tight bending radius for easy routing**
- **Standard output ferrules accept spot lenses and polarizing caps (See the Accessories section)**
- **Standard input accepts Dichroic color filters, diffusers and ColdVision Series light sources**
- **Support products are available in the Support Apparatus section of the product catalog**
- **Modified standard and custom configurations are available**

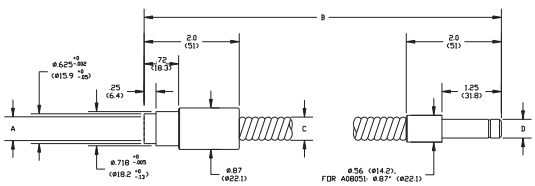
Single Bundle, A08031.60

Single Bundles

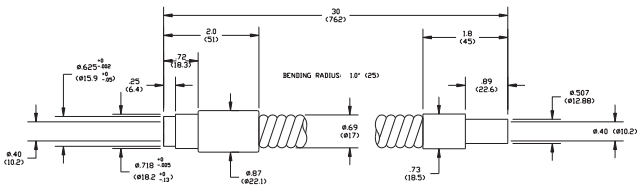
Dimensions in ( ) are in mm

Bundle Input: Black Anodized Aluminum
Bundle Sheathing: PVC Covered Metal Tubing

Warning : This product is manufactured with glass fiber. Not for use in cable/hose carrier. Call MORITEX to discuss moving cable/hose carrier applications.



A08020.40 - A08051.60
Single Bundles



A21200 Bundle

Bundle

Part No.	Active Input Fiber Diameter	Distal Ferrule Diameter	Tubing Diameter	Bundle Length
A08020.40	.20″ (5)	.393″ (10)	.39″ (10)	40″ (1016)
A08020.60	.20″ (5)	.393″ (10)	.39″ (10)	60″ (1524)
A08025.40	.25″ (6)	.393″ (10)	.47″ (12)	40″ (1016)
A08025.60	.25″ (6)	.393″ (10)	.47″ (12)	60″ (1524)
A08031.40	.30″ (8)	.393″ (10)	.47″ (12)	40″ (1016)
A08031.60	.30″ (8)	.393″ (10)	.47″ (12)	60″ (1524)
A08031.80	.30″ (8)	.393″ (10)	.47″ (12)	80″ (2032)
A08051.40	.51″ (13)	.625″ (16)	.75″ (19)	40″ (1016)
A08051.60	.51″ (13)	.625″ (16)	.75″ (19)	60″ (1524)
A21200	.40″ (10)	.507″ (13)	.69″ (18)	30″ (762)

Dimensions in ( ) are in mm

Matrix for A08020.40 - A08051.60 Bundles

Part No.	A	B	C	Bend Radius	D
A08020.40	.20" (5)	40" (1016)	.39" (10)	.5" (13)	.393" (10)
A08020.60	.20" (5)	60" (1524)	.39" (10)	.5" (13)	.393" (10)
A08025.40	.25" (6)	40" (1016)	.47" (12)	.6" (15)	.393" (10)
A08025.60	.25" (6)	60" (1524)	.47" (12)	.6" (15)	.393" (10)
A08031.40	.30" (8)	40" (1016)	.47" (12)	.6" (15)	.393" (10)
A08031.60	.30" (8)	60" (1524)	.47" (12)	.6" (15)	.393" (10)
A08031.80	.30" (8)	80" (2032)	.47" (12)	.6" (15)	.393" (10)
A08051.40	.51" (13)	40" (1016)	.75" (19)	1.4" (36)	.625" (16)
A08051.60	.51" (13)	60" (1524)	.75" (19)	1.4" (36)	.625" (16)
A21200	.40" (10)	30" (762)	.69" (18)	1.0" (25)	.507" (13)

Dual and Quad Bundles

Flexible bundles give the user versatility when routing and positioning the light.

- **Variety of standard sizes and bundle furcations with tight bending radius for easy routing**
- **Multi-leg bundles are illuminated with one light source**
- **Standard output ferrules accept spot lenses and polarizing caps (See the Accessories section)**
- **Standard input accepts Dichroic color filters, diffusers and ColdVision Series light sources**
- **Support products are available in the Support Apparatus section of the product catalog**
- **Modified standard and custom configurations are available**

Quad Bundle, A08545

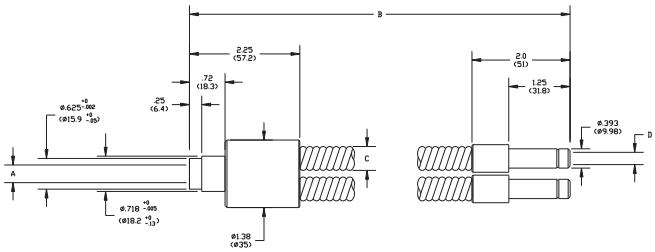
Dual Bundle, A08550.72

Dual and Quad Bundles

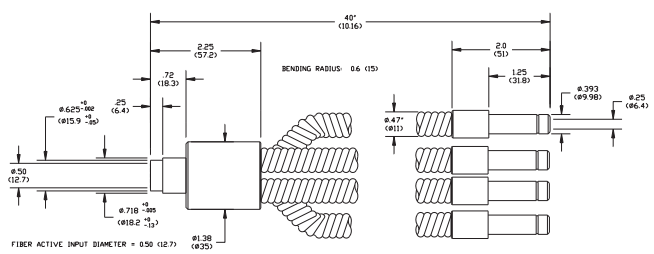
Dimensions in ( ) are in mm

Bundle Input: Black Anodized Aluminum
Bundle Sheathing: PVC Covered Metal Tubing

Warning : This product is manufactured with glass fiber. Not for use in cable/hose carrier. Call MORITEX to discuss moving cable/hose carrier applications.



A08530 - A08550.72 Dual Flexible Bundles



A08545 Quad Flexible Bundles

Dual and Quad Bundles

Part No.	Active Input Fiber Diameter	Distal Ferrule Diameter	Tubing Diameter	Bundle Length
Dual Bundles				
A08530	.30" (8)	.393"(10)	.40" (10)	40"(1016)
A08540	.36" (9)	.393" (10)	.47" (12)	40"(1016)
A08550	.43" (11)	.393" (10)	.47" (12)	40"(1016)
A08550.72	.43" (11)	.393" (10)	.47" (12)	72" (1829)
Quad Bundles				
A08545	.50" (13)	.393" (10)	.47" (12)	40" (1016)

Dimensions in ( ) are in mm

Matrix for A08530 - A08550.72 Dual Bundles

Part No.	A	B	C	Bend Radius	D
A08530	.30" (8)	40" (1016)	.40" (10)	.5" (13)	.21" (5.3)
A08540	.36" (9)	40" (1016)	.47" (12)	.6" (15)	.25" (6.4)
A08550	.43" (11)	40" (1016)	.47" (12)	.6" (15)	.30" (7.6)
A08550.72	.43" (11)	72" (1829)	.47" (12)	.6" (15)	.30" (7.6)

Randomized and Calibrated Bundles

Designed to increase uniformity of light output for Machine Vision applications.

- **Fibers are randomized to improve spot uniformity, bundles with multiple outputs are calibrated for matching output within ~5% bundle to bundle**
- **We assure consistency by adding a 12" (305mm)* randomized common end at the input. This extra 12" (305) of fiber scrambles the light, distributing any hot or cold spots from the lamp throughout each of the legs.**
- **Variety of standard sizes and bundle furcations with tight bending radius for easy routing (see chart)**
- **Multi-leg bundles are illuminated with one light source**
- **Standard output ferrules accept spot lenses and polarizing caps (See the Accessories section)**
- **Modified standard and custom configurations are available**

Quad Randomized and Calibrated Bundle, A21045

Single Randomized Bundle, A08031.40R

Single Bundle, A08031.60R

Randomized and Calibrated Bundles

Part No.	Configuration	Active Input Fiber Diameter	Distal Ferrule Diameter	Tubing Diamter	Bundle Length
Randomized Bundles					
A08031.40R	Single	.30"(8)	.393" (10)	47" (12)	40" (1016)
★ A08031.60R	Single	.30"(8)	.393" (10)	47" (12)	60" (1524)
★ A08031.80R	Single	.30"(8)	.393" (10)	47" (12)	80" (2032)
Randomized and Calibrated Bundles - 12"(305) Common Bundle Length					
A21040	Dual	.36" (9)	.393" (10)	.60" (15)	48" (1219)
A21045	Quad	.51" (13)	.393" (10)	.83" (21)	48" (1219)
A21050	Dual	.43" (11)	.393" (10)	.67" (17)	48" (1219)

Dimensions in ( ) are in mm

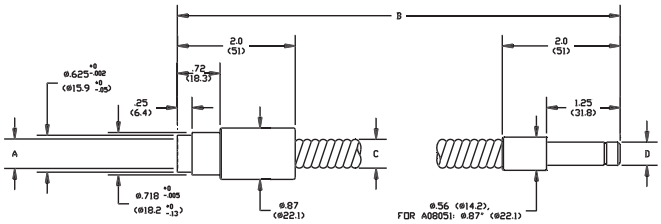
★ Made-to-order products.

Randomized and Calibrated Bundles

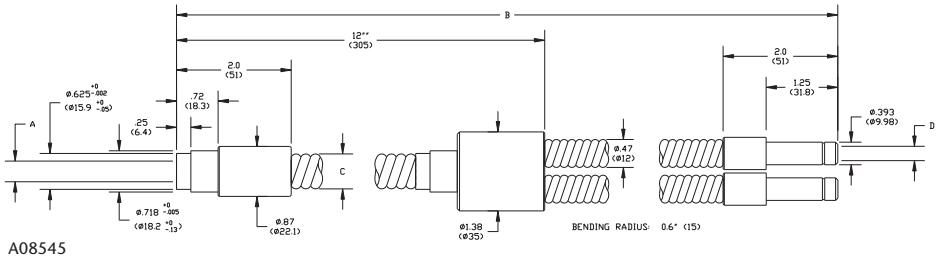
Dimensions in ( ) are in mm

Warning : This product is manufactured with glass fiber. Not for use in cable/hose carrier. Call MORITEX to discuss moving cable/hose carrier applications.

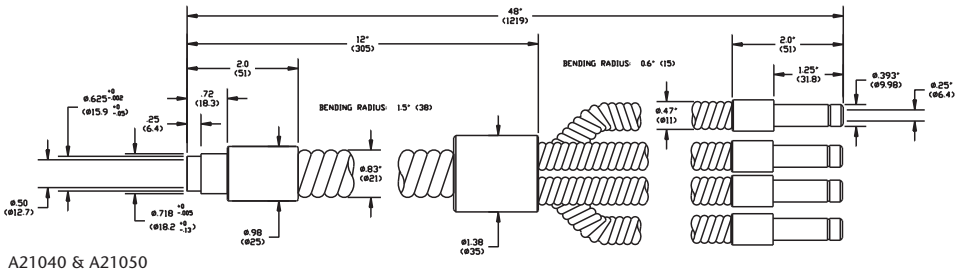
Bundle Input: Black Anodized Aluminum
Bundle Sheathing: PVC Covered Metal Tubing



A08031.40R - A08031.80R
Single Randomized Bundles



A08545
Quad Flexible Bundles



A21040 & A21050
Dual Randomized &
CalibratedBundles

Matrix for A08031.40R - A08031.80R

Part No.	A	B	C	Bend Radius	D
A08031.40R	.30" (78)	40" (1016)	.47" (12)	.6" (15)	.393" (10)
A08031.60R	.30" (78)	60" (1524)	.47" (12)	.6" (15)	.393" (10)
A08031.80R	.30" (78)	80" (2032)	.47" (12)	.6" (15)	.393" (10)

Matrix for A21040 & A21050

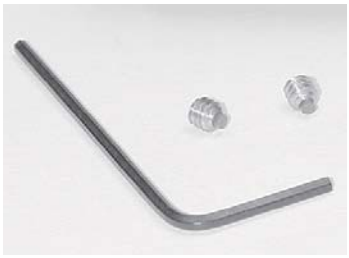
Part No.	A	B	C	Bend Radius	D
A21040	.36" (9)	48" (1219)	.60" (15)	1.0" (25)	.25" (6.4)
A21050	.43" (11)	48" (1219)	.67" (17)	1.2" (30)	.30" (7.6)

Bundle Extenders

Extend the working length of standard fiber optic components using a SCHOTT bundle and these couplers.

Bundle Extender, A08035

- **Reduces the requirement for custom fiber optic lengths, can provide the user with additional work space**
- **Extends length of all standard SCHOTT ringlights, bundles, goosenecks, lightlines, and backlights* that have a .310" (8) or .510" (13) active fiber diameter (see chart)**
- **Black anodized aluminum with nylon tipped set screws**



Bundle Extender Nylon Tipped Set Screws

PLEASE NOTE:

*** Using a bundle extender results in a 30-40% light loss. If your application requires maximum intensity, we recommend ordering a modified standard component.**

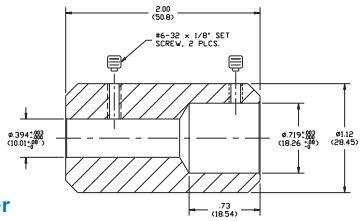
*** Backlight adapter, part number A08931 is required in order for the bundle extender to be used with SCHOTT standard backlights**

Bundle Extender

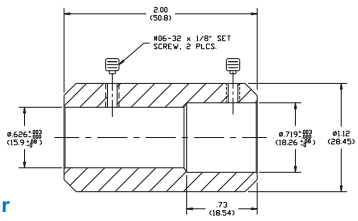
Bundle Extender Part No.	Single Bundle Part No.
A08035	A08031.40
	A08031.60
	A08031.80
	A08031.40R
	A08031.60R
	A08031.80R
A08055	A08051.40
	A08051.60

Bundle Extenders

Dimensions in ( ) are in mm



A08035
Bundle Extender



A08055
Bundle Extender

Single and Dual Goosenecks

Obedient, incident illumination for space constrained applications.

- **Made with chrome plated semi-obedient metal or black dekabon semi-rigid gooseneck tubing**
- **Easily adjustable, precise positioning offers complete control of light placement**
- **Dual models illuminate workspace with a single light source**
- **Gooseneck legs placed in opposing positions create near shadow-free illumination**
- **Standard output ferrules accept spot lenses and polarizing caps (See the Accessories section)**
- **Model number A08575 is a dual focusing gooseneck that has permanently attached spot lenses, easily focused by turning the knurled lens barrels**
- **Modified standard and custom configurations are available**

Single Black Gooseneck, A08410

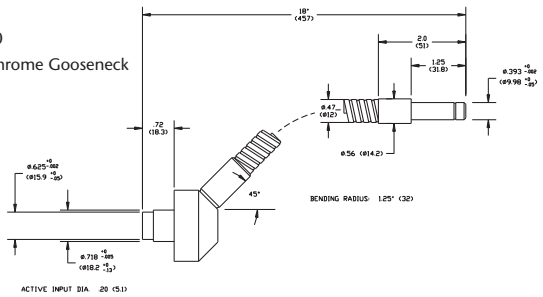
Dual Chrome Gooseneck, A08500

Single and Dual Goosenecks

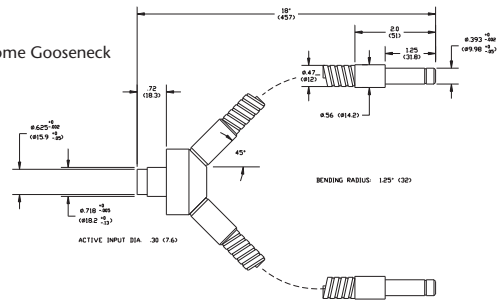
Dimensions in ( ) are in mm

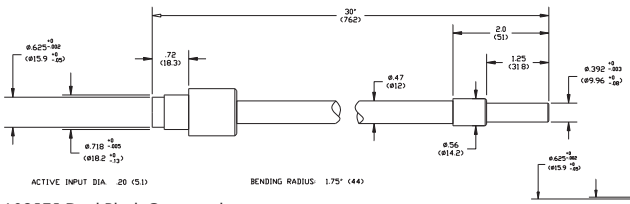
Bundle Input: Black Anodized Aluminum / **Bundle Sheathing:** Chrome or Black Decabon

A08500
Dual Chrome Gooseneck



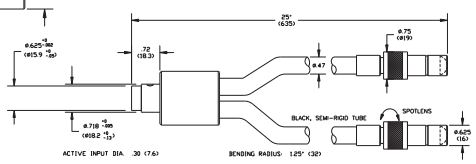
A08400
Single Chrome Gooseneck





A08575 Dual Black Gooseneck

A08410 Single Black Gooseneck



Warning : This product is manufactured with glass fiber. Not for use in cable/hose carrier. Call MORITEX to discuss moving cable/hose carrier applications.

Goosenecks

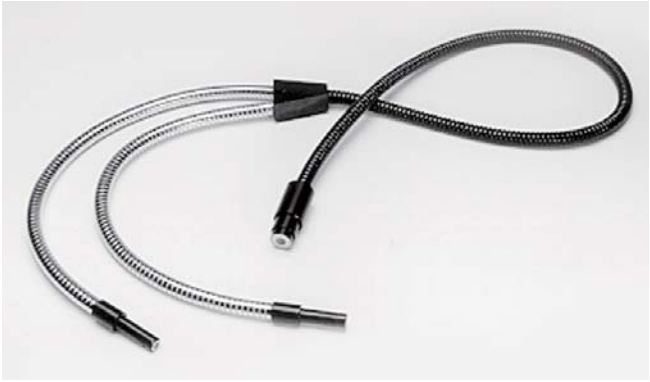
Part No.	Tubing	Distal Ferrule Diameter	Active Input Fiber Diameter	Gooseneck Tubing Diameter	Gooseneck Length
Single					
A08400	Chrome	.20" (5)	.393" (10)	.47" (12)	18" (457)
A08410	Black	.20" (5)	.393" (10)	.47" (12)	30" (762)
Dual					
A08500	Chrome	.30" (8)	.393" (10)	.47" (12)	18"(457)
A08575	Black	.30" (8)	.21" (5)	.47" (12)	23" (584)

Dimensions in ( ) are in mm

Combination Goosenecks & Bundles

Obedient, incident illumination for space constrained applications.

- **Bundle sheathing is made of PVC covered metal tubing and the gooseneck is made of semi-obedient, chrome-plated metal gooseneck tubing**
- **Bend radius of the chrome gooseneck tubing is 2-3" (51 - 76)***
- **Easily adjustable, precise positioning offers complete control of light placement**
- **Dual models illuminate a workspace with a single light source**
- **Gooseneck legs placed in opposing positions create shadow-free illumination**
- **Modified standard and custom configurations are available**



Combination Dual Gooseneck with Bundle, A08520

Combination Gooseneck, Bundle, and Bracket, A08512 for Olympus SZX Series Microscopes

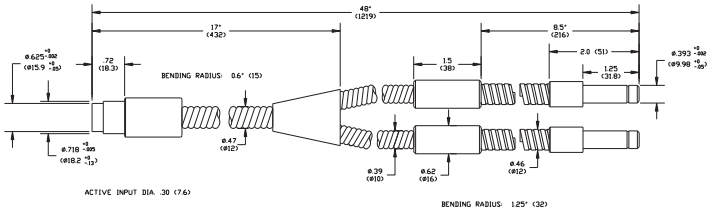
Combination Goosenecks & Bundles

Dimensions in ( ) are in mm

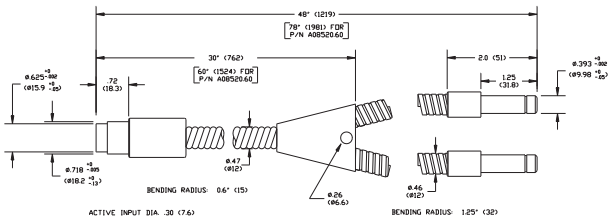
Bundle Input: Black Anodized Aluminum / **Bundle Sheathing:** PVC Covered Metal Tubing / **Gooseneck Sheathing:** Chrome Plated Steel

Warning : This product is manufactured with glass fiber. Not for use in cable/hose carrier. Call MORITEX to discuss moving cable/hose carrier applications.

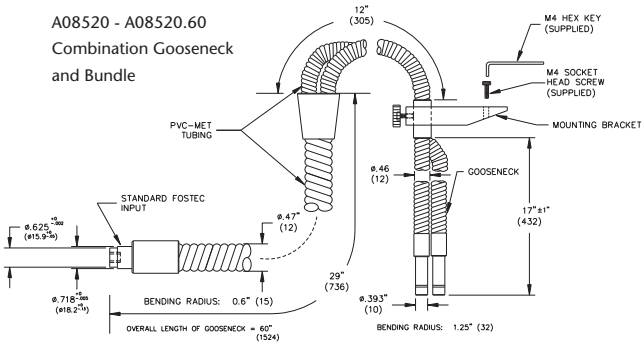
A08510
Combination Gooseneck and Bundle



A08512
Combination Gooseneck and Bundle



A08520 - A08520.60
Combination Gooseneck and Bundle



Combination Goosenecks and Bundles

Part No.	Active Input Fiber	Active Output Fiber Diameter	Bundle Tubing Diameter	Gooseneck Tubing Diameter	Bundle Length Diameter	Gooseneck Length
Combination Goosenecks and Bundle(s)						
A08510	.30" (8)*	.21" (5)	.47" (12)	.46" (12)	17" (432)	8.5"(216)
A08512	.30" (8)	.21" (5)	.47" (12)	.46" (12)	29" (737)	17"(432)
A08520	.30" (8)	.21" (5)	.47" (12)	.46" (12)	30" (762)	18"(457)
A08520.60	.30" (8)	.21" (5)	.47" (12)	.46" (12)	60" (1524)	18"(457)

Dimensions in ( ) are in mm

Support Apparatus

For accurate positioning in both industrial and laboratory environments.

Support Apparatus

Part No.	Description
A08508	Bundle holder with .565" (14.4) dia. hole for all bundle diameters up to .51" (13). Has an M6 thread.
Universal Post Clamps	
★ A08522	Ring for 18 mm post. Zeiss IVB Stereo, IB, III, IV, IVB
★ A08523	Ring for 20 mm
★ A08524	Ring for 24.5 mm
★ A08525	Ring for 25 mm
★ A08526	Ring for 32 mm
★ A08527	Ring for 22 mm
★ A08528	Ring for 29 mm

★ Made-to-order products.

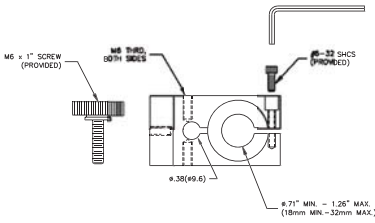
A08522

Articulated Arm, A08505

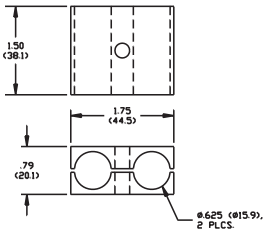
Gooseneck & Bundle Support Apparatus

Dimensions in ( ) are in mm

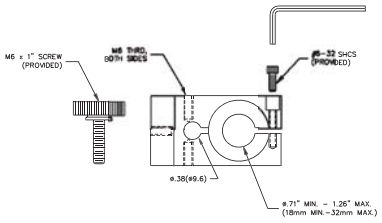
A08522



A08502 Clamp Set



A08522 - A08528 Clamps



A08508

Support Apparatus

Part No.	Description
A08505	Articulated arm with M6 thread on one end (will attach to heavy base and V-clamp) and M8 thread on the other end which will fit our A08592 dual V-clamp.
A08506	Articulated arm with M6 threads on both ends. Versatile accessory easily locked into place with only one knob. Can be used with our base and V-clamp and will accept all holders.
A08507	3 1/2 lb. Base for attaching up to three support arms and/or posts at once. M6 threads only.
A08590	Spring Clamp with M6 thread. Industrial strength universal clamp that can be used with our articulated arms to hold bundles, light lines and other equipment. Secure to tabletops or other like sur faces.
A08591	V-Clamp with two M6 threaded holes to use as a table clamp and will accept all our holders.

Articulated Arm, A08506

Spring Clamp, A08590

Base, A08507

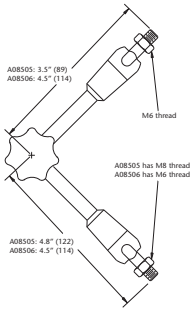
Bundle Extender Nylon Tipped Set Screws

Support Apparatus

Dimensions in ( ) are in mm

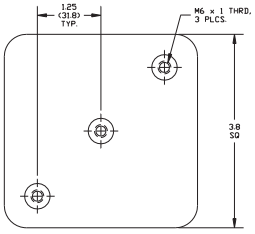
A08505 & A08506

Articulated Arms



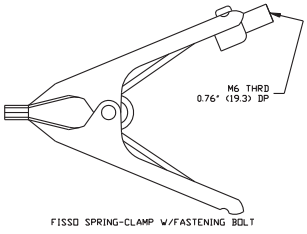
A08507

Base



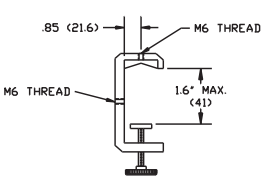
A08590

Spring Clamp



A08591

V-Clamp



Filters, Diffusers & Spot Lenses

Color Filters, A08070-A08074

Filters and Adapters

- Available in red, green, blue, yellow, and daylight; these Dichroic filters will not darken or alter spectral response over time, regardless of light intensity or duration
- Daylight filter increases existing color temperature to approximately 3000 K when used with EKE, EJA, and DDL lamps at their rated voltages
- Dichroic color filters reflect heat versus absorbing it, eliminating the need for a thermal expansion split
- Clear anodized aluminum housing is used on the filters, black anodized aluminum housing is used on the adapter

A08931 Color Filter Adapter

A08087 & A08086 Input Lens Diffusers

Diffusers

- Input lens diffuser, part number, A08086, homogenizes beams with minimal light loss and minimizes black hole phenomenon from fiber bundles
- Opal diffuser option, part number, A08087, creates the most uniform light - almost flat illumination, but reduces output by 40%
- Diffusers fit on all ColdVision standard inputs

Spot lens models, A08080,A08084, A08082

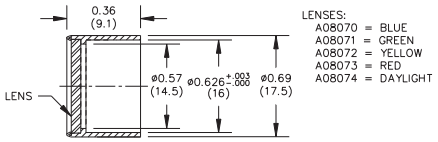
Spot Lenses

- Used on distal ends of goosenecks and bundles to focus the light

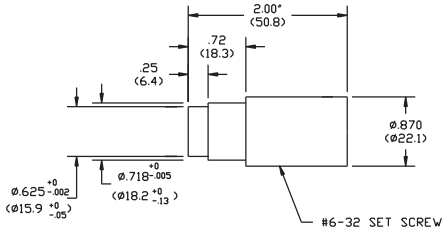
Polarizing cap, A08090, for spot lens, A08080

Dimensions in ( ) are in mm

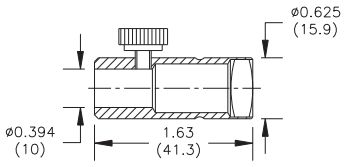
A08070 - A08074
Dichroic Color Filters



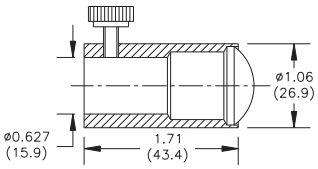
A08931
Color Filter Adapter



A08080 Spot Lens



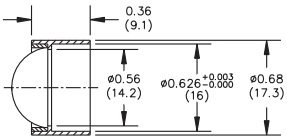
A08084 Spot Lens



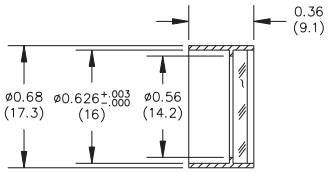
Part No.	First Spot Location	First Spot Diameter	Second Spot Location	Second Spot Diameter
A08080	40 mm	45 mm	80 mm	90 mm
A08082	40 mm	30 mm	80 mm	60 mm
A08084	40 mm	30 mm	80 mm	60 mm

- Polarizing cap, part number, A08090, is available for spot lens model, A08080, to eliminate glare and reflections. Five spare polarizing discs are included with the product.

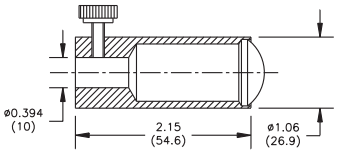
A08086
Input Lens Diffuser



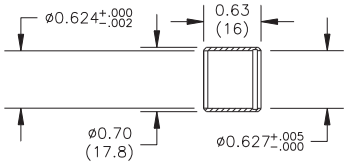
A08087
Input Opal Diffuser



A08082 Small Spot Lens



A08090 Polarizing Cap

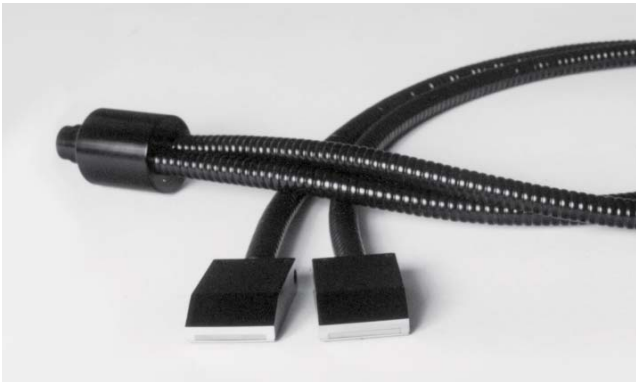


Filters, Diffusers & Spot Lenses

Part No.	Description				
Dichroic Color Filters & Adapter					
A08070	Blue	A08073	Red	A08931	Color Filter Adapter
A08071	Green	A08074	Daylight		
A08072	Yellow	A08075	UV Filter, Cut-off		
Diffusers					
A08086	Input lens diffuser				
A08087	Input opal diffuser				
Spot Lenses					
A08080	Spot lens for std. bundles except A08051.40 & A08051.60				
A08082	Small spot lens for std. bundles except A08051.40 & A08051.60				
A08084	Spot lens for models A08051.40 & A08051.60				
Polarizing Cap (for A08080)					
A08090	Polarizing cap for A08080 (fits on A08575)				

Lightlines, 1", 2", & 3"

Alternative to fiber optic bundles for narrower and elongated illumination for Microscopy and Machine Vision Inspection applications with higher uniformity than any LED chips can achieve due to position density



1" (25) Dual Lightline, A08579

- **Small, uniform fields of view**
- **Narrow body design and offset position of the line on 1" (25) and 2" (51) bodies allows close positioning for darkfield effect**
- **3"(76)* models are calibrated with DDL-bulb to ±8 gray scale levels at a mean of 200 with a gamma setting of 1.0 to deliver optimum uniformity (see chart)**
- **Uniformity of 1"(25) and 2"(51) lines is better than ±8 gray scales (See reference section for more information on uniformity of fiber optic products)**
- **Rugged aluminum body and light source ferrule with black anodized finish, PVC covered metal tubing protects the fiber bundle**
- **Lightline holders and support products available**
- **Custom lengths, bundle exits, multiple combinations (dual, quad, etc.) and line widths can be designed for your unique requirements; Combine lightlines with other fiber optic components in a single input to create unique lighting effects**
- **Cylindrical and apertured lenses are available for most lightline models (Made-to-Order)**

One leg of Dual or Quad 3" (76) Lightline with Cylindrical Lens

Lightlines, 1", 2", & 3"

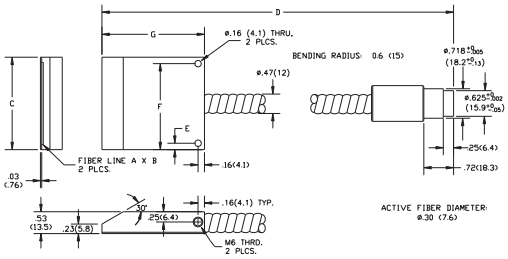
Dimensions in ( ) are in mm

Input: Black Anodized Aluminum
Body: Black Anodized Aluminum
Sheathing: PVC Covered Metal Tubing

: This product is manufactured with glass fiber. Not for use in cable/hose carrier. Call MORITEX to discuss moving cable/hose carrier applications.

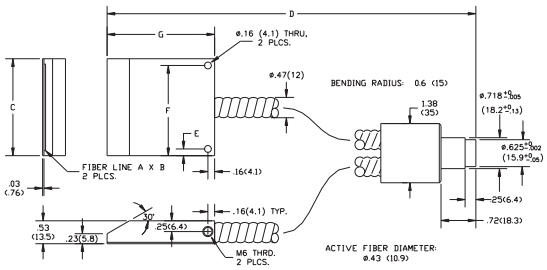
A08588 & A08589

Single Lightlines



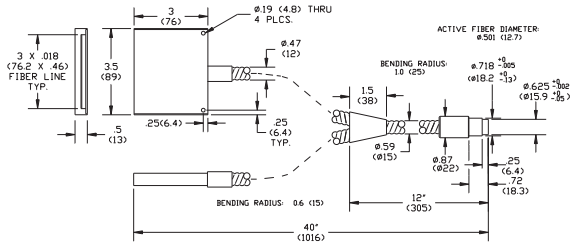
A08579 & A08583

Dual Lightlines



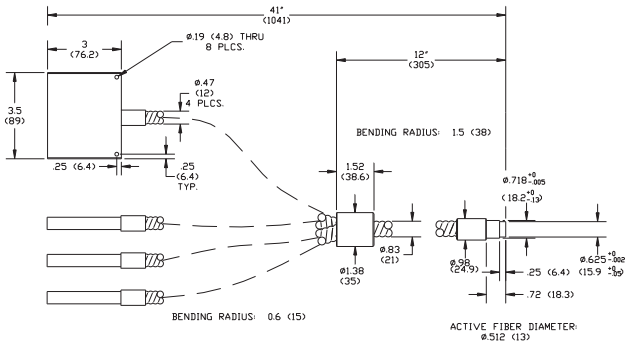
A08580

Dual Lightline



A08584

Quad Lightline



Lightlines, 1", 2", & 3" and Lenses

Part No.	Line Dimensions Length x Width	Input Active Fiber Dia.	Gray Scale Uniformity^	Part No. for Lens	
				Cylindrical	Apertured
Single line configuration w/36" bundle length					
A08588	1" x .070" (25 x 1.8)*	.30" (7.6)	< ± 8	★ A08571	Custom
A08589	2" x .035" (51 x .89)	.30" (7.6)	< ± 8	★ A08572	Custom
Dual line configuration w/36" bundle length					
A08579	1" x .070" (25 x 1.8)	.43" (10.9)	< ± 8	A08571	Custom
A08583	2" x .035" (51 x .89)	.43" (10.9)	< ± 8	A08572	Custom
A08580	3" x .018" (76 X .46)	.36" (9.1)	± 8	A08582	Custom
Quad line configuration w/36" bundle length					
A08584	3" x .018" (76 X .46)	.51" (13.0)	± 8	★ A08582	Custom

^ Gamma setting of 1.0 Dimensions in ( ) are in mm

★ Made-to-order products.

Matrix for A08588 & A08589 Lightlines

Part No.	A	B	C	D	E	F	G
A08588	1"(25)	.07"(1.8)	1.25"(31.8)	38"(965.2)	.16"(4.1)	1.1"(28)	2"(50.8)
A08589	2"(51)	.035"(.89)	2.25"(57.2)	38.5"(978)	.16"(4.1)	2.1"(53)	2.5"(63.5)

Matrix for A08579 & A08583 Lightlines

Part No.	A	B	C	D	E	F	G
A08579	1"(25)	.07" (1.8)	1.25"(31.8)	38"(965.2)	.16"(4.1)	1.1"(28)	2"(50.8)
A08583	2"(51)	.035"(.89)	2.25"(57.2)	38.5"(978)	.16"(4.1)	2.1"(53)	2.5"(63.5)

Lightlines

Uniform lines of light ideal for Machine Vision and line scan applications achieving higher uniformity than any LED chips due to position density

12" Lightline, A08912

- **Calibrated with DDL-bulb to a specified number of gray scale levels (see chart) at a mean of 200 with a gamma setting of 1.0 to deliver optimum uniformity (See reference section for more information on uniformity of fiber optic products)**
- **Assembly method accurately positions the fiber line within the body on all three planes, to a tolerance of ± .004"(0.1)†, assuring the fiber axis will be parallel with the mounting surface of the body**
- **Fiber bundle exit locations include back-side (standard exit), back-center, and true-side**
- **Rugged aluminum body and light source ferrule with black anodized finish, PVC covered metal tubing protects the fiber bundle**
- **Lightline holders and support products available**
- **Custom lengths, bundle exits, multiple combinations (dual, quad, etc.) and line widths can be designed for your unique requirements**
- **Cylindrical and apertured lenses are available for most lightline models (Made-to-Order)**

Dual Lightines, A08975

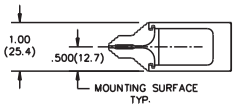
Apertured Lens, A08806, Cylindrical Lens, A08826

Lightlines

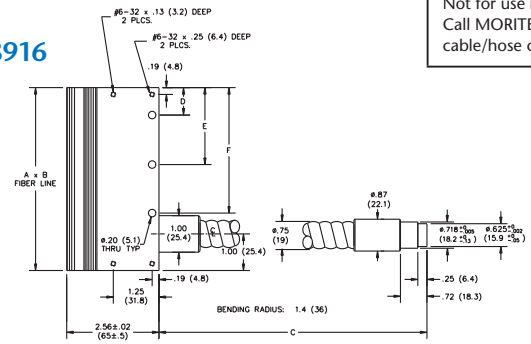
Dimensions in ( ) are in mm

Input: Black Anodized Aluminum
Body: Black Anodized Aluminum
Sheathing: PVC Covered Metal Tubing

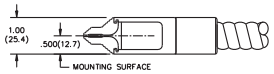
Warning : This product is manufactured with glass fiber. Not for use in cable/hose carrier. Call MORITEX to discuss moving cable/hose carrier applications.

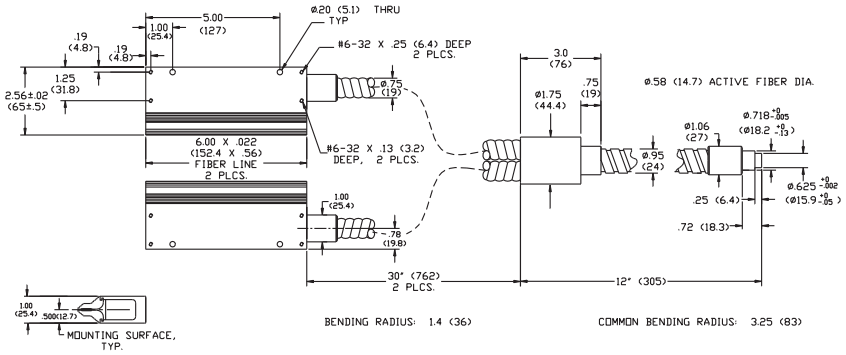


A08903 – A08916
Lightlines



A08975
Dual Lightline





Lightlines and Lenses

Part No.	Line Dimensions Length × Width	Input Active Fiber Dia.	Gray Scale Uniformity^	P/N Lens Cylindrical	P/N Lens Apertured
Single line configuration w/30"bundle length and back-side single exit					
A08903	3" × .040" (76 × 1.02)	.39" (10)†	± 8	★ A08823	★ A08803
A08904	4" × .036" (102 × .91)	.43" (11)	± 8	★ A08824	★ A08804
A08905	5" × .040" (127 × 1.02)	.51" (13)	± 8	★ A08825	★ A08805
A08906	6" × .033" (152 × .84)	.51" (13)	± 8	★ A08826	★ A08806
★A08907*	7" × .029" (178 × .74)	.51" (13)	± 8	★ A08827	Custom
A08908	8" × .025" (203 × .64)	.51" (13)	± 8	★ A08828	★ A08808
★A08909*	9" × .022" (229 × .56)	.51" (13)	± 8	★ A08829	Custom
A08910	10" × .020" (254 × .51)	.51" (13)	± 8	★ A08830	★ A08810
★A08911*	11" × .018" (279 × .46)	.51" (13)	± 8	★ A08831	Custom
A08912	12" × .016" (305 × .41)	.51" (13)	± 8	★ A08832	★ A08812
★A08913*	13" × .015" (330 × .38)	.51" (13)	± 10	★ A08833	Custom
Custom	14" × .014" (356 × .36)	.51* (13)	± 10	★ A08834	Custom
★A08915*	15" × .013" (381 × .33)	.51" (13)	± 10	★ A08835	Custom
A08916	16" × .012" (406 × .30)	.51" (13)	± 10	★ A08836	★ A08816
Dual line configuration w/true-side bundle exit (see photo above)					
A08975	6" ×.022" (152 × .56)	.58" (16)	± 8	A08826	A08806

* Items are made to order, and may require additional 3-4 weeks delivery
Gamma setting of 1.0

Dimensions in ( ) are in mm

★ Made-to-order products.

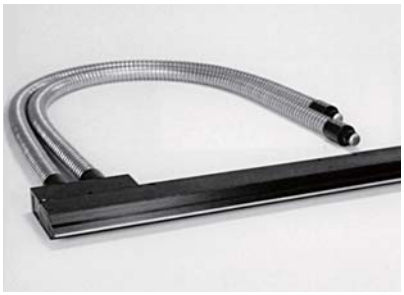
Matrix for A08903 - A08916 Lightline Drawing

Part No.	A	B	C	D	E	F
A08903	3" (76)	.040" (1.0)	30" (762)	.75" (19.1)	1.5" (39)	n/a
A08904	4" (102)	.036" (.91)	30" (762)	.75" (19.1)	2.5" (64)	n/a
A08905	5" (127)	.040" (1.02)	30" (762)	.75" (19.1)	3.5" (89)	n/a
A08906	6" (152)	.033" (.84)	30" (762)	.75" (19.1)	4.5" (114)	n/a
A08907	7" (178)	.029" (.74)	30" (762)	.75" (19.1)	5.5" (140)	n/a
A08908	8" (203)	.025" (.64)	30" (762)	.75" (19.1)	6.5" (165)	n/a
A08909	9" (229)	.022" (.56)	30" (762)	.75" (19.1)	7.5" (191)	n/a
A08910	10" (254)	.020" (.51)	30" (762)	.75" (19.1)	8.5" (216)	n/a
A08911	11" (279)	.018" (.46)	30" (762)	.75" (19.1)	9.5" (241)	n/a
A08912	12" (305)	.016" (.41)	30" (762)	.75" (19.1)	10.5" (267)	n/a
A08913	13" (330)	.015" (.38)	30" (762)	.75" (19.1)	6.13" (156)	11.5" (292)
Custom	14" (336)	.014" (.38)	30" (762)	.75" (19.1)	6.63" (168)	12.5" (316)
A08915	15" (381)	.013" (.33)	30" (762)	.75" (19.1)	7.13" (181)	13.5" (343)
A08916	16" (406)	.012" (.30)	30" (762)	.75" (19.1)	7.63" (194)	14.5" (368)

Spatially Randomized Lightlines

A patented exclusive, these 24" and 40" lightlines are ideal for web and line scanning applications requiring exceptional uniformity

Continuous Lightline, A08940



Continuous Lightine, A08964

- **Manufactured using a patented process called spatial randomization, the process allows light from each input to be distributed over the entire length of the line so that if a light source fails while using multiple inputs, intensity is evenly reduced over the length of the line, rather than losing all light in a section of the line**
- **Calibrated to ±15 gray scale levels at a mean of 200 with a gamma setting of 1.0 to deliver optimum uniformity (See reference section for more information on uniformity of fiber optic products)**
- **Assembly method accurately positions the fiber line within the body on all three planes, to a tolerance of ± .004”(0.1)†, assuring the fiber axis will be parallel with the mounting surface of the body**
- **24" (610) lightline accepts our dichroic filters and diffusers, to use color filters on the 40" (1016) line part number A08931, color filter adapter, is required**
- **Rugged aluminum body with a black anodized finish, stainless steel tubing protects the fiber bundle**
- **Cylindrical lenses are available and are designed to collect light exiting the lightline to increase intensity up to a factor of 10**
- **Custom lengths, bundle exits, and line widths can be designed for your unique requirements**

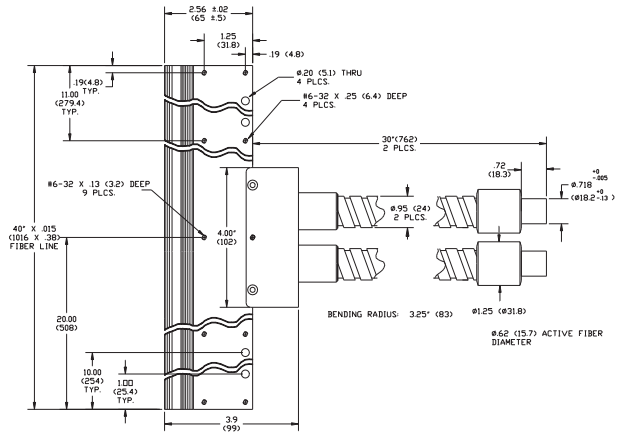
Spatially Randomized Lightlines

Dimensions in ( ) are in mm

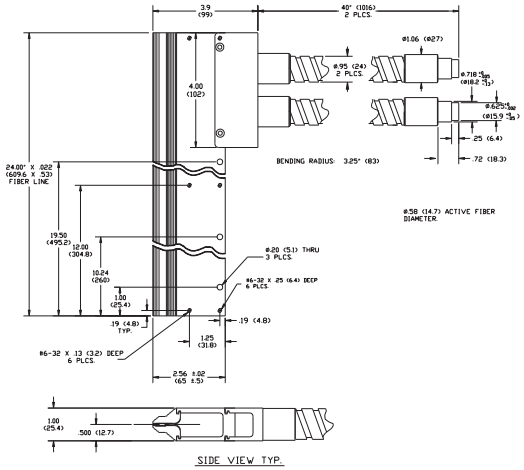
Input: Black Anodized Aluminum
Body: Black Anodized Aluminum
Sheathing: Stainless Steel Covered Metal Tubing

Warning : This product is manufactured with glass fiber. Not for use in cable/hose carrier. Call MORITEX to discuss moving cable/hose carrier applications.

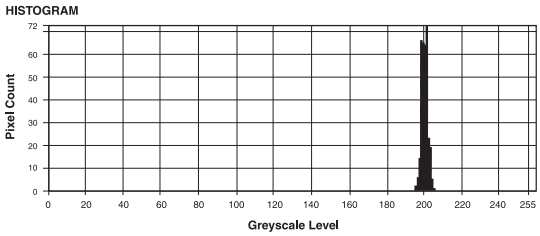
A08940
40″ (1016) Lightline



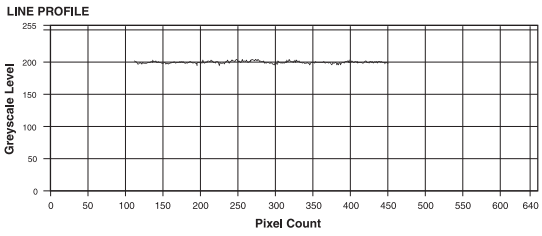
A08964
24″ (610) Lightline



Histogram



Example of Line Scan Results



Global Report

Mean Value	Maximal Value	Minimal Value	Standard Variation	Area (pixels)	%
199.78	205.00	195.00	1.74	337	1.40

Lightlines and Lenses

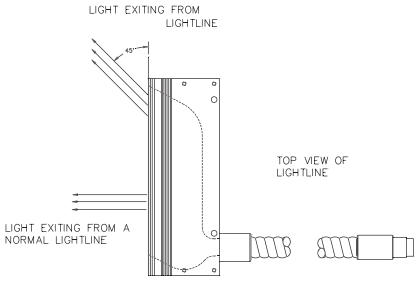
Part No.	Line Dimensions Length x Width	Input Active Fiber Dia.	Gray Scale Uniformity	Bundle Length	Part No. for Lens	
					Cylindrical	Apertured
A08940	40″x.015″ (1016x.38)	.62″ (16)*	± 15	30″ (762)	★ A08860	Custom
A08964	24″x.022″ (610x.56)	.57″ (14)	± 15	40″ (1016)	★ A08864	Custom

★ Made-to-order products.

Lightline, 45°

Engineered and designed to emit light at a 45° angle along the length of the line.

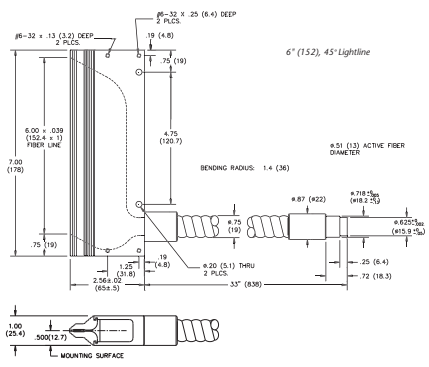
- **Output fibers are angled 30° to the nosepiece, as a result they are polished on a bias which causes emitted light to exit at 45° to the nosepiece allowing the line to be positioned off-axis to the object and illuminate the field-of-view without loss of uniformity, while avoiding interference with the camera**
- **Useful for illuminating a rectangular surface area where the features are perpendicular to the line body, an important consideration in space constrained systems**
- **Lightline is calibrated to ± 8 gray scales at a mean of 200 with a gamma setting of 1.0, for optimum uniformity with DDL-lamp**
- **Assembly method accurately positions the fiber line within the body on all three planes, to a tolerance of ± .004"(0.1)†, assuring the fiber axis will be parallel with the mounting surface of the body**
- **Rugged aluminum body with black anodized finish, PVC covered metal tubing protects the fiber bundle**
- **Custom configurations can be engineered for unique requirements**
- **Cylindrical and apertured lenses are adjustable and easy to attach**



Lightline, 45°

Dimensions in ( ) are in mm

Input: Black Anodized Aluminum
Body: Black Anodized Aluminum
Sheathing: PVC Covered Metal Tubing



Lightline, 45°

Part No.	Line Dimensions Length x Width	Input Active Fiber Dia.	Gray Scale Uniformity^	Part No. for Lens	
				Cylindrical	Apertured
Custom	6" x .039" (152 x 1.0)	.51" (13)	±8	Custom	Custom

Lightline Lenses

Cylindrical and apertured lenses for 1" to 16" lightlines.

Cylindrical and apertured lenses, A08806 & A08826

- **Cylindrical and apertured lenses are available for most lightline models, most are Made-to-Order but they can be custom made for all models**
- **Cylindrical lens attachments are designed to collect light exiting the lightline to increase intensity up to a factor of 10**
- **Apertured lens attachments are designed to project a more collimated line of light, not to increase light intensity**
- **Lenses are adjustable and easily attach to SCHOTT lightlines**
- **Custom length and configurations are available**

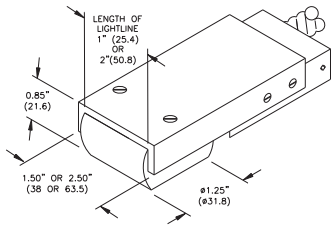
3" (76 mm) Lightline with A08582 Cylindrical Lens

Lightline Lenses

Dimensions in ( ) are in mm

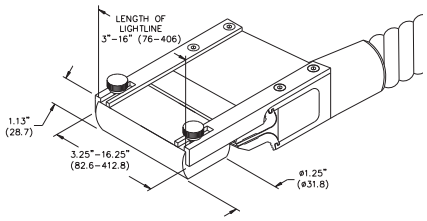
A08571

Cylindrical and Apertured Lenses



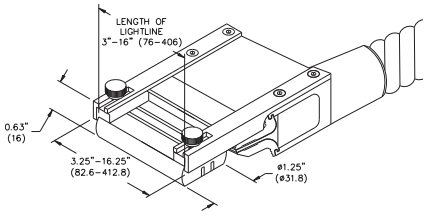
A08824, A08826,A08832

Cylindrical Lenses



A08806

Apertured Lenses



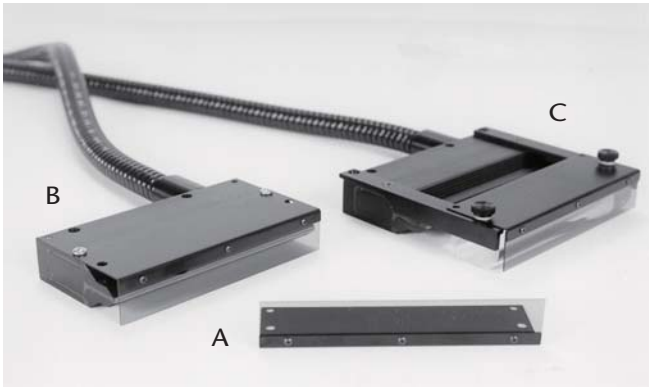
Lenses and Polarizer Kits

Lightline Part No.	Lens Part No.	
	Cylindrical	Apertured
1", 2", & 3" Lightlines		
A08579	★ A08571	Custom
A08580	★ A08582	Custom
A08583	★ A08572	Custom
A08584	A08572	Custom
A08588	A08571	Custom
A08589	A08572	Custom
3" to 16" Continuous Lightlines		
A08903	A08823	Custom
A08904	A08824	Custom
A08905	A08825	Custom
A08906	A08826	Custom
A08907	A08827	Custom
A08908	A08828	Custom
A08909	A08829	Custom
A08910	A08830	Custom
A08911	A08831	Custom
A08912	A08832	Custom
A08913	A08833	Custom
A08914	A08834	Custom
A08915	A08835	Custom
A08916	A08836	Custom
A08975	A08826	A08806
24" to 40" Continuous Lightlines		
A08940	A08860	Custom
A08964	A08864	Custom
45 Degree Lightline		
Custom	Custom	Custom

★ Made-to-order products

Lightline Linear Polarizer Kits

- Developed for use with 3" to 16" (227 to 406 mm) lightlines to enhance contrast on highly reflective surfaces for area and line scanning applications
- Easily mount on SCHOTT lightlines alone or with cylindrical and apertured lenses affixed to the lightline
- Polarizer(s) should be used with an analyzer supplied by the customer which is typically attached to the camera objective
- Two polarizers are included in the kit; one polarizes in the horizontal axis and the other polarizes in the vertical axis
- Most options are made-to-order or custom



(A) Lightline polarizer assembly, A08845,
(B) Polarizer affixed to a 5" lightline,
(C) Polarizer affixed to a cylindrical lens on a lightline

Linear Polarizer Kits

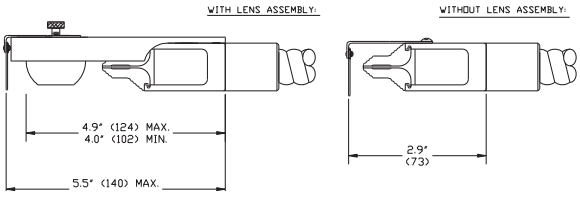
Lightline Part No.	Polarizer Kits Part No.
A08903	Custom
A08904	★ A08844
A08906	Custom
A08908	Custom
A08910	Custom
A08912	Custom
A08914	Custom
A08916	Custom
A08975	Custom

★ Made-to-order products.

DCR® III Light Source

A08843 - A08856 Polarizers

Dimensions in ( ) are in mm



Lightlines Support Apparatus

For accurate positioning in both industrial and laboratory environments

Lightline Holder, A08901

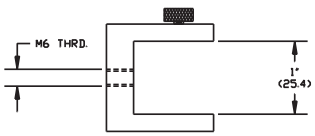
3" Lightline, A08903, with Holder, A08901, supported by an articulated arm, A08506, and base, A08507

Lightlines Support Apparatus

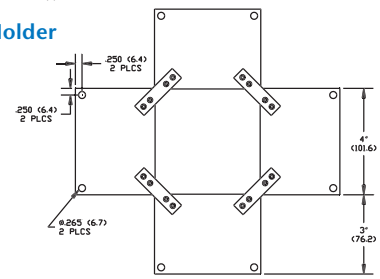
Dimensions in ( ) are in mm

A08901

Holder



Quad Holder



Support Apparatus

Part No.	Description
A08901	Lightline holder with M6 thread. Will support 3" (76) to 10" (254) single lightlines when attached to an articulated arm and base.

Single and Dual Backlights

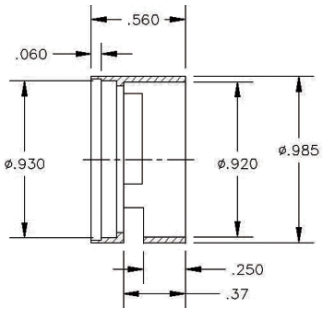
Patented SCHOTT Backlights are calibrated to provide bright, even illumination for Microscopy and Machine Vision applications.

8" x 8" Backlight, A08927

- **Calibrated with DDL-bulb from ±13 to ±15 gray scale levels at a mean of 200, gamma setting of 1.0, using a patented process to create diffuse, uniform illumination within the active area (Uniformity scans are available upon request)**
- **The white acrylic diffuser plate provides the optimum combination of uniformity and intensity, a protective IR filter is included with every unit**
- **Backlight housing is made of rugged, black anodized aluminum, the plastic fiber bundle is protected with flexible PVC covered metal tubing**
- **Compact, low profile housing fits in small spaces**
- **Can be used to create a crisp edge definition, or soft, diffuse incident light**
- **Dual and quad backlights increase lighting versatility, additional combinations and sizes can be custom ordered**
- **Intended for use with strobes and ColdVision Series light sources; other sources, particularly those without an IR filter, may damage the plastic fibers**
- **ColdVision dichroic color filters can be used on the products in conjunction with the A08931 backlight color filter adapter (see photo)**

Dual 2" x 2" Backlight, A08922

IR Filter A08921 with measurements



Single and Dual Backlights

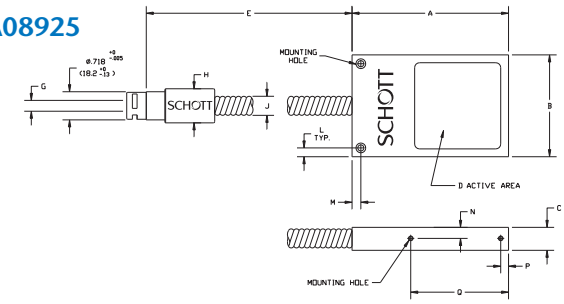
Dimensions in ( ) are in mm

Input: Black Anodized Aluminum
Bundle Sheathing: PVC Covered Metal Tubing
Max Fiber Temperature: 70°

Warning : The IR filter on the input protects the fibers from damage caused by IR absorption.

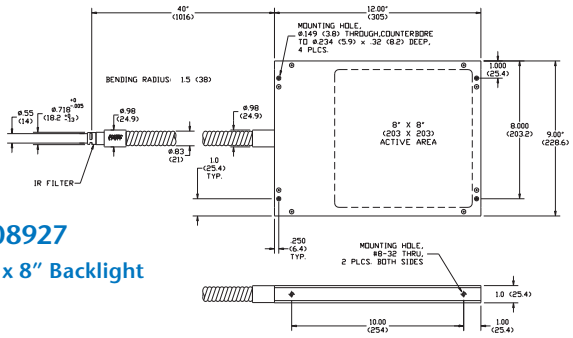
A08920, A08923, & A08925

Single Backlights



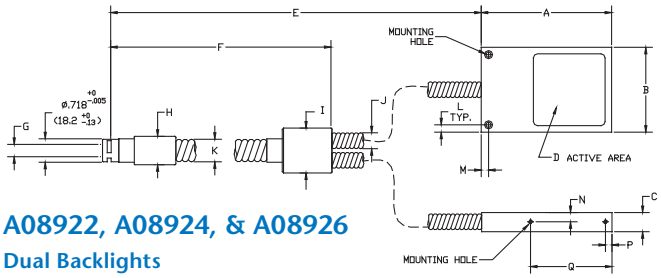
A08927

8" x 8" Backlight



A08922, A08924, & A08926

Dual Backlights



Backlights

Part No.	Active Area	Housing Dimensions	Gray Scales	Bundle Length	Common Bundle Length
Single Configuration					
A08920	2" x 2" (51 x 51)	4" x 2.6" x .59" (102 x 66 x 14.9)	±13	40" (1016)	N/A
A08923	3" x 3" (76 x 76)	6" x 3.5" x .75" (152 x 89 x 16)	±13	40" (1016)	N/A
A08925	4" x 4.88" (102 x 124)	9" x 5" x .78" (229 x 127 x 19.7)	±13	40" (1016)	N/A
A08927	8" x 8" (203 x 203)	12" x 9" x 1" (305 x 229 x 25.4)	±15	40" (1016)	N/A
Dual Configuration					
A08922	2" x 2" (51 x 51)	4" x 2.6" x .59" (102 x 66 x 14.9)	±13	42" (1067)	10" (254)
A08926	4" X 4.88" (102 X 124)	9" X 5" X .78" (229 X 127 X 19.7)	±13	37" (940)	10" (254)

Matrix for Single and Dual Backlights

Part No.	Housing Dimensions LX W X H	Active Area	Overall Bundle Length
Ref. Letter	A, B, C	D	E
A08920	4"x2.6"X.59" (102x66x14.9)	2"X2" (51x51)	40" (1016)
A08922	4"x2.6"x.59" (102x66x14.9)	2"x2" (51x51)	42" (1067)
A08923	6"x3.5"x.75" (152x89x19.1)	3"x3" (76x76)	40" (1016)
A08924	6"x3.5"x.75" (152x89x15.9)	3"x3" (76x76)	40" (1016)
A08925	9"x5"x.78" (229x127x19.7)	4"x4.88" (102x124)	37" (940)
A08926	9"x5"x7.8'' (229x127x19.8)	4"x4.88" (102x124)	37" (940)

Matrix for Single and Dual Backlights (Continuation)

Part No.	Common Bundle Length	Active Input Dia.	Ferrule Dia	Coupler Dia	Tubing Dia	Top Mounting Hole Location	Top Mounting Hole Dimensions	Side Mounting Hole Location	Side Mounting Hole Dimensions	Bend Radius
Ref. Letter	F	G	H	I	JK	L/M	THRU/DIA/C'BORE DIA/DEPTH	N/P/Q	THREAD/ DEPTH	
A08920	N/A	.28" (7.0)	.87" (22.1)	N/A	.47" (12)	.225"/.225" (5.72/5.72)	.156"/.25"/.150" (4.0/6.4/3.8)	28"/.20"/2.50" (7.2/5.1/63.5)	#4-40 UNC 2A/.38 (9.6)	.6" (15)
A08922	10" (254)	.39" (9.9)	.87" (22.1)	1.38" (34.9)	.47"/.67" (12/17)	.225"/.225" (5.72/5.72)	.156"/.25"/.150" (4.0/6.4/3.8)	.28"/.20"/2.50" (7.16/5.1/63.5)	#4-40 UNC 2A/.38 (9.6)	.6"/1.2" (15)/(30)
A08923	N/A	.32" (8.1)	.87" (22.1)	N/A	.60" (15)	.187"/.187" (4.75/4.75)	.177"/.28"/.165" 4.5/7.1/4.2	.32"/100"/5.00" (8.1/25.4/127)	#6-32/.25" (6.4)	1" (25)
A08925	N/A	.39" (9.9)	.87" (22.1)	N/A	.68" (17.3)	.425"/.425' (10.80/10.80)	.250"/.50"/.300" (6.4/12.7/7.6)	.36"/.20"/5.75" (9.1/5.08/151)	#6-32 UNC 2A/.38 (9.6)	1" (25)
A08926	10" (254)	.55" (13.8)	.98" (24.9)	1.50" (38.1)	.68"/.83" (17/21)	.425"/.425" (10.80/10.80)	.250"/.50"/5.00" (6.4/12.7/7.6)	.36"/.20"/5.75" (9.1/5.08/146)	#6-32 UNC 2A/.38" (9.6)	1/1.5" (25)/(38)

PANELite® Backlights

A versatile addition to the extensive line of our patented backlights.

- **Patented process creates diffuse, uniform† illumination within the active area**
- **Slim profile to fit the most restrictive space requirements and economical since no housing is required**
- **Dependable performance built into three standard configurations, all with an IR filter included**
- **Flexible panel A23000 can create a seamless, curved background and can be trimmed to final size**
- **When used with a curved diffuser (not included) PANELite® backlights are ideal for multi-camera inspection of cylindrical surfaces**
- **Intended for use with strobes and ColdVision Series light sources; other sources, particularly those without an IR filter, may damage the plastic fibers**
- **Can be used with all of our dichroic color filters in conjunction with the A08931 backlight color filter adapter**

Note: Uniformity Tolerances varies with size of active area. See technical specifications

PANELite® Backlight with adhesive back, A23000

Typical Applications

- **Glass inspection**
- **Edge detection**
- **Photography**
- **Instrumentation display**

Special Configurations

- **Due to the special nature of these products, all are models made-to-order**
- **PANELite® backlights can be manufactured with different active areas, placement of outputs and mounting hole locations; contact us for a custom quote**

PANELite® Backlights

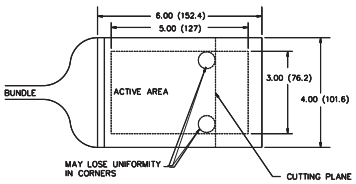
Dimensions in ( ) are in mm

Transmits visible light - from 400nm to 700nm
Temperature limit 0° to 70° C
- Area of calibration is 3"x 5" (76 x 127)
- Calibrated to ±15 gray scale levels at a mean of 200, gamma setting of 1.0
- Tested with a .118"(3mm) white acrylic plate, spaced .3" (7.6) from panel. (Call manufacturer for set up specification)

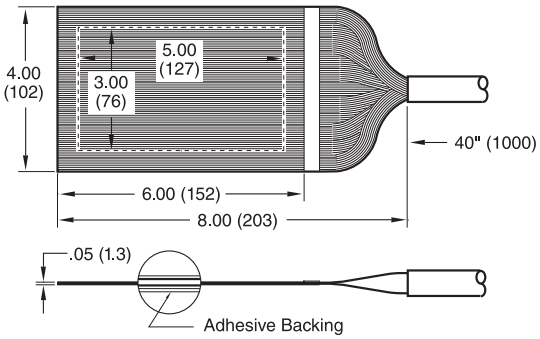
Warning : This product contains plastic fibers. To avoid fiber damage use only with SCHOTT or other approved light sources. Do not use input filters or diffusers without a SCHOTT adapter. Thermal transfer may cause damage to the fibers. All PANELite® Backlights have permanent input IR filters which must be kept clean. Clean panels with isopropanol only. OTHER SOLVENTS will damage the fiber and affect uniformity.

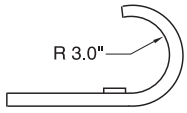
A23000

PANELite® Backlight

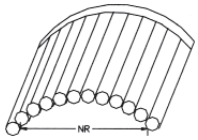


The A23000 PANELite® backlight can be trimmed in either direction with a good pair of scissors. NOTE: Trimming affects uniformity in the corners along the trimmed edge.





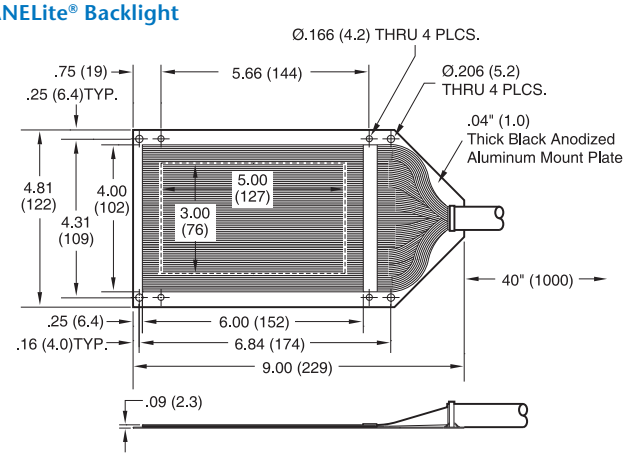
Bending Radius



Do not bend parallel to fiber direction.

A23010

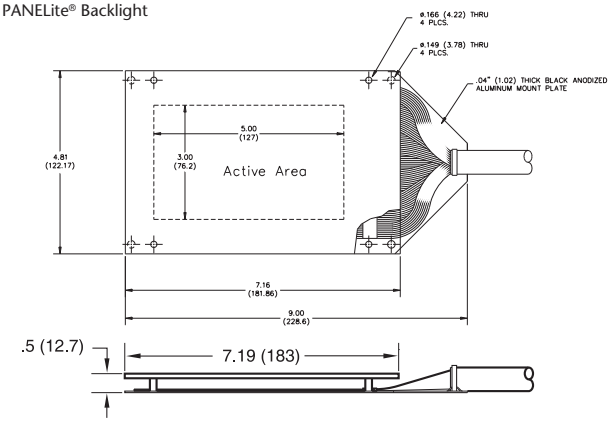
PANELite® Backlight

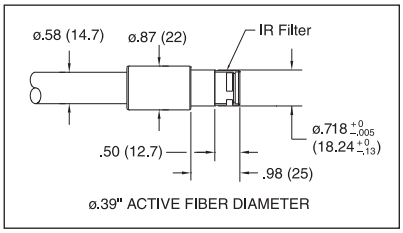


All standard PANELite® backlight configurations have the same input dimensions.

A23020

PANELite® Backlight





PANELite® Backlights

Part No.	Description	Calibrated Area	Panel Size	Overall Thickness
★ A23000	Flexible, adhesive back	3" x 5" (76 x 127)*	4" x 6" (102 x 152)	.05" (1.3)
★ A23010	Non-flexible, black anodized aluminum back	3" x 5" (76 x 127)	4.8" x 9" (122 x 229)	.09" (2.3)
★ A23020	Non-flexible, black anondized aluminum plate with acrylic diffuser plate	3" x 5" (76 x 127)	4.8" x 9" (122 x 229)	.5" (12.7)
Options				
★ A08931	Color filter adapter	Fits backlight light source adapters with .718" (18.2) diameter input size		

★ Made-to-order products.

Fiber Specifications

A2 Fiber

Material: Glass

Characteristics: High transmission, performs best in the visible spectrum, large aperture angle and low color shift

Specifications:

Numerical Aperture NA:	0.64
Acceptance angle:	80˚
Color temperature (D 65 illumination):	5475K
Fiber diameter (µm):	30,50,70
Bundle length (M):	≤10

Note: Longer lengths available upon request

B3 Fiber

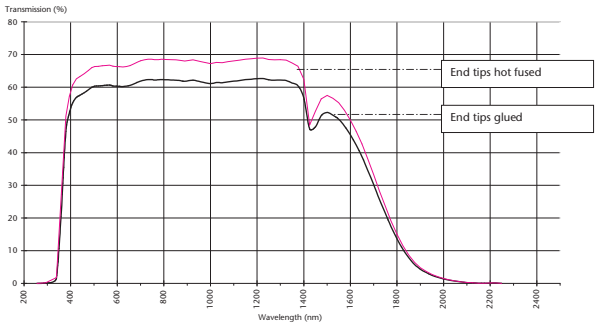
Material: Glass

Characteristics: Excellent transmission, performs best in visible spectrum, high acceptance angle and extremely colorless.

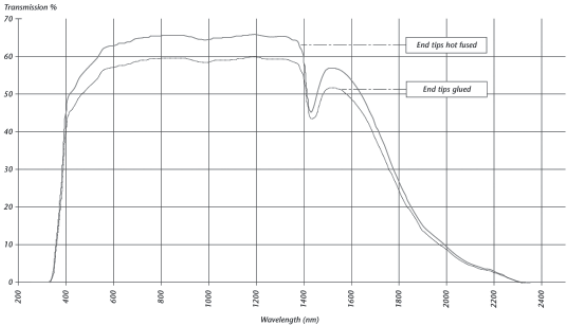
Specifications:

Numerical Aperture NA:	0.54
Acceptance angle:	65˚
Color temperature (D 65 illumination) :	5870 K
Fiber diameter (µm):	30,50,70
Bundle length (M):	≤10

Spectral Transmission for 1 M Bundle, Fiber Type A2



Spectral Transmission for 1 M Bundle, Fiber Type B3



PURAVIS® GOF85

Material: High Purity Optical Glass without lead, arsenic and antimony

Characteristics: Exellent transmission, performs best in the visible spectrum, large aperture angle and improved white transission.

Specifications:

Numerical Aperture NA:	0.64
Acceptance angle:	> 80˚
Color temperature (D 65 illumination)(1m length) :	6300 K
Fiber diameter (µm):	30,50,70

PURAVIS® GOF70

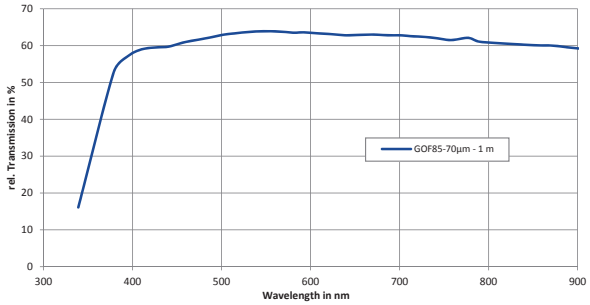
Material: High Purity Optical Glass without lead, arsenic and antimony

Characteristics: Excellent transmission, performs best in visible spectrum, high acceptance angle and improved color shift.

Specifications:

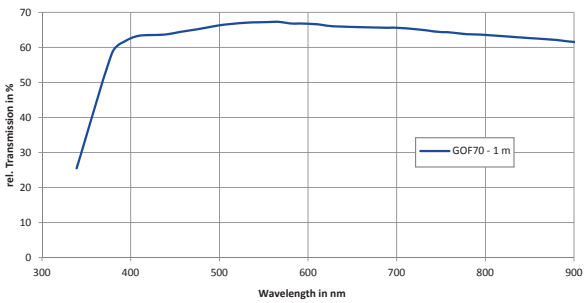
Numerical Aperture NA:	0.54
Acceptance angle:	> 65˚
Color temperature (D 65 illumination) (1m length) :	6270 K
Fiber diameter (µm):	30,50,70

Spectral Transmission for 1 M Bundle, Fiber Type GOF85



*Fully RoHS compliant without exemption

Spectral Transmission for 1 M Bundle, Fiber Type GOF70



*Fully RoHS compliant without exemption

W Fiber

Material: Glass

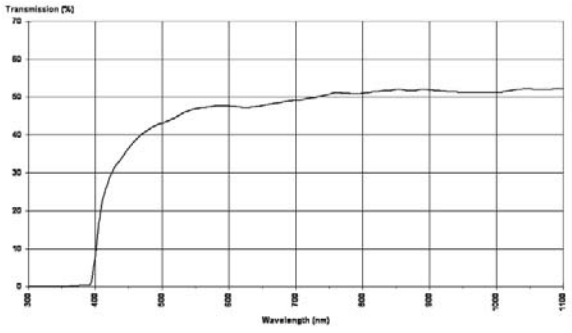
Characteristics: Used for the visible region of the spectrum when a wide aperture angle is required.

Specifications:

Numerical Aperture:	0.87
Acceptance angle:	119°
Color temperature (D 65 illumination):	4700 K
Fiber Diameter (µm):	30
Bundle length (M):	≤10

Note: Longer lengths available upon request

Spectral Transmission for 1 M Bundle, Fiber Type W



FDS Fibers / Low OH

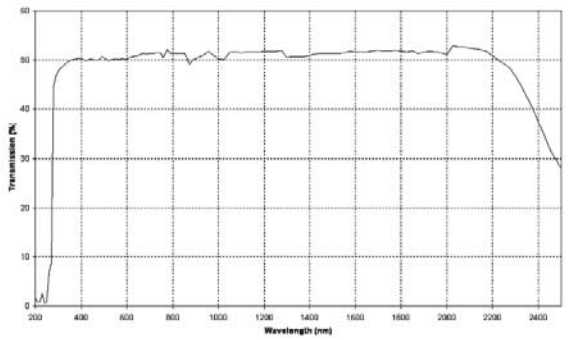
Material: Fluorine Doped Fused Silica (FDS)

Characteristics: Low OH. Performs good in UV spectrum, but better in the IR.

Specifications:

Numerical Aperture NA:	0.22 (+/-.02)
Acceptance angle:	25° (+/-2°)
Fiber diameter (µm):	240
Bundle length:	Quoted

Spectral Transmission for 1 M Bundle, Fiber Type FDS Low OH



FDS Fibers / High OH

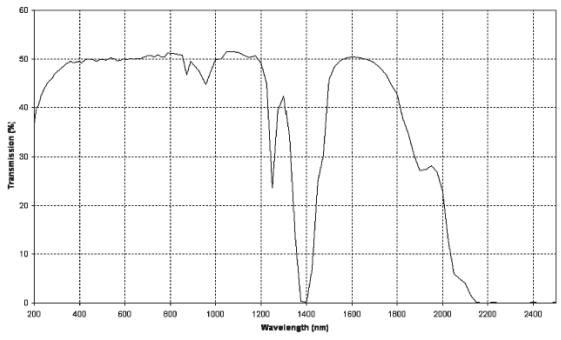
Material: Fluorine Doped Fused Silica (FDS)

Characteristics: High OH. Performs best in the UV spectrum.

Specifications:

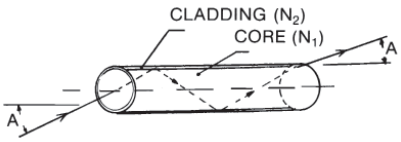
Numerical Aperture NA:	0.22 (+/-.02)
Acceptance angle:	25° (+/-2°)
Fiber diameter (µm):	107, 240
Bundle length:	Quoted

Spectral Transmission for 1 M Bundle, Fiber Type FDS High OH



Fiber Characteristics

Fiber Composition



Most optical fibers consist of two different types of optically transmittive materials. The core, about 75-90% of the fiber depending on the fiber diameter, has a higher refractive index than the cladding. This creates a reflecting interface between core and cladding which keeps the light within the core due to total reflection.
Most optical fibers are made from glass, plastic or synthetic fused silica (often refered to as "quartz", but actually the fibers consist of non-crystalline "quartz glass".). Each fiber has different properties producing various advantages. Due to their low attenuation silica fibers are commonly used in data communication. Glass is still the best choice for illumination and sensing applications, due to a reasonale cost-benefit ratio. Plastic fibers can be used for assemblies not requiring heat above 175° F/80° C. Single plastic fibers are usually larger in diameter than glass fibers, which results in restricted bending radii.

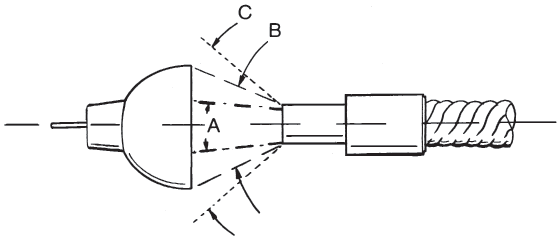
Numerical Aperture

The sketch above shows a typical fiber. The core has a refractive index of N1 and the cladding an index of N2. Light enters the fiber at angle A and is transmitted through the fiber. If the angle A is too large, the light will not be transmitted. We call the angle beyond which the light cannot be carried through the fiber the Critical Angle. This is calculated using the two refraction indices. The sine of the Critical Angle is the Numerical Aperture or NA The Acceptance Angle of the fiber is two times the Critical Angle.

$$NA = \sqrt{(N_1)^2 - (N_2)^2} \qquad f\# = 1/2\ NA$$

EXAMPLE: If N1 is 1.62 and N2 is 1.52, the NA will be .56 which equals a Critical Angle of 34° and an Acceptance Angle of 68° . The f number/equivalent will be f/0.89.

Optical fibers tend to preserve the angle of incidence during the light transmission and therefore in the figure above, the angle A is shown at both the entrance and exit ends of the fiber. The sketch below shows a typical projecting lamp illuminating a fiber bundle. The angle A is the Acceptance Angle of a .25 NA fiber (29°). Angle B is the Incident Angle from the lamp and angle C is the Acceptance Angle of a .66 NA fiber (83°).



The calculated minimum NA. required for the 45° Angle of Incidence is .38. Therefore, a fiber with an NA. of .66 will accept all of the light from the lamp, but the output angle will only be 45° and not the 83° which might be expected. However, the .25 NA. fiber which cannot accept all of the light, will have an output angle of 20° . Using a low NA. fiber will not focus the light from a lamp because it can't receive any light beyond its Critical Angle and therefore has a narrow output cone. Multicomponent glass fibers typically reach NA values up to 0.9, whereas quartz silica fibers typically do not exceed 0.4 NA values.

Transmission Characteristics of Optical Fibers

High quality optical glass (crown and flint glass) is used for the light transmitting core and an optical glass with a different refractive index for the cladding. Wavelengths between 400 and 900 nm are transmitted uniformly, with only minor variations.

In this range SCHOTT's standard multicomponent glass optical fibers (GOF70 and GOF85) have attenuation levels between 150 and 300 dB/km. While featuring improved transmission for wavelengths between 350 and 450 nm, transmission for the deeper UV range is very low and wavelengths below 350 nm are not transmitted. Glass optical fibers feature as well transmission in the near infrared range (0.8 µm to 1.3 µm). At 1.4 micron, all fibers except those specifically designed for IR transmission, show a significant drop in transmission due to OH-Absorption within the glass. In the range from 1.4 up to 2.0 µm specifically designed glass optical fibers for IR-transmission can be used.

For improved transmission over the entire range from 250 nm up to 3.0 µm quartz glass (fused silica) fibers are the best choice, but have a lower NA.

Transmission Characteristics of Optical Fiber Bundles

Although specific information on the performance of a single fiber is valuable, it is important to understand how optical fibers perform when manufactured into bundles. Due to total reflection, a portion of the light will be reflected at the polished glass surface of the fiber at the entrance as well as the exit. In addition, the interstitial gaps between the fibers, usually filled with epoxy glue, will not transmit any light. The losses due to these two effects can be estimated at appoximately 25 % -30 %, depending on the polishing quality. The loss of the interstitial gaps can be reduced by hotfusing the entrance end instead of glueing the fibers together. Thus, transmission can be increased up to 15 %. In addition, transmission loss will be caused with increasing length of the lightguide. A 3-foot/1m lightguide will transmit approximately 60% of the light emitted by the lamp towards the fiber bundle within the NA. A 10-foot/3m light guide will transmit about 55% of the light and a 30-foot/10 meter lightguide roughly of 40 %.

Uniformity of Fiber Optic Products

SCHOTT North America, Inc. manufactures two product lines which require a uniformity specification across a given area: lightlines, also referred to as spot to line converters, or cross-section transformers and backlights.

The uniformity of lightlines and backlights can be evaluated utilizing a Machine Vision System:
· CCD area scan camera
· a framegrabber card
· image analysis software.

Backlights

The backlight is placed directly under the camera at a defined distance based on the size of the active area. The camera will be focussed onto the top surface of the backlight diffuser. Then the uniformity is measured by using an area of interest (AOI) histogram. The AOI will be slightly smaller than the active area to compensate for edge fall-off. The light source used for backlight calibration is a DCR® III with an EKE lamp.

Lightlines

Lightlines smaller than 16" (406 mm) in length are mounted on a 45 degree angle fixture. The fixture has a diffuser plate which is located .5" (13 mm) above the fiber line. The line is projected onto the diffuser plate, which is positioned directly below an area scan camera. The distance from the camera to the diffuser is determined by line length but is approximately 24" (610 mm). The camera's focus is adjusted to the top surface of the diffuser. The uniformity is then measured by taking a line profile of the image. The line profile will be approximately .5"-1" (13 mm-25 mm) shorter than the product to compensate for fall-off. The light source used for lightline calibration is a DCR® III with a DDL lamp. The above information is an overview of our calibration process.

Using these set-ups, backlights and lightlines will be calibrated to predefined uniformity values. Details are provided on the individual data sheets.

Lamp Intensity versus Lamp Life

Halogen Bulbs

All SCHOTT Halogen cold light sources (including the ACE®, DCR®III, KL 1500 LCD, KL 2500 LCD and KL 200) allow the user to adjust light intensity from zero to the full rated voltage of the lamp. However, voltage to the lamp effects lamp life. As a rule of thumb, a 10% reduction in voltage of most halogen lamps increases the anticipated life time to 400%. SCHOTT recommends using the minimum intensity setting needed to maximize the life of the lamp.

The Halogen Cycle is the operating principle of all Quartz Halogen lamps. At full voltage, the temperature of the glass envelope is hot enough to keep evaporated tungsten (thrown off from the filament) from collecting on the glass surface. The tungsten is cycled back to the filament and thus increases its lifetime. As voltage is reduced, the temperature of the glass envelope also decreases, which might effect the halogen cycle. For this reason the lamp life might not be increased as expected when the voltage is dimmed below 75%.

All types of quartz Halogen bulbs used in SCHOTT cold light sources (DDL, EKE, EJA, EFR and ELC) operate in the same manner.

Quartz UV Light Guides

Our Quartz fiber light guides are ideal for light transmittance and high-power spot curing in combination with a UV light source.

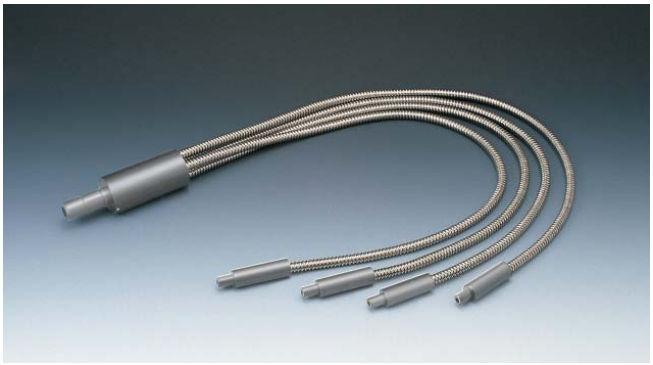
Because we control the entire production process from fiber drawing to final assembly, we can not only offer an assortment of standard products, but also a multitude of custom solutions ranging in shapes, branches, lengths and diameters. Depending on the application, we can adapt and meet many different requirements.

Quartz Fiber Light Guide Applications

- UV Curing
- Florescence Analysis
- Lighting in Vacuum & Special Environments
- Specialized Medical Illumination
- LCD & Semiconductor Lithography

Quartz UV Light Guide
UV

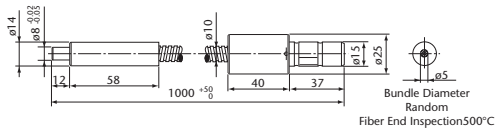
- **MORITEX draws raw quartz fibers, processes, and bundles them according to application**
- **Straight, multi-branch, and other various configurations of light guides can be manufactured including light guides made to customer specifications**



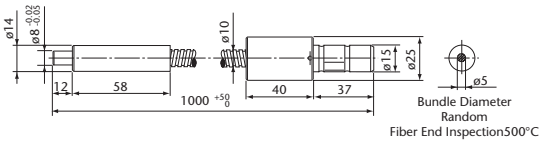
	Model	Notes
	MSS5-1000S-UVIII	ø5×1000L
	MWS5-1000S-UVIII	ø5 x 2-Branch x 1000L
	M4S5-1000S-UVIII	ø5 x 4-Branch x 1000L
★	MSS3.5-1000S-UVIII	ø3.5×1000L
★	MWS3.5-1000S-UVIII	ø3.5 x 2-Branch x 1000L
★	M3S3.5-1000S-UVIII	ø3.5 x 3-Branch x 1000L
★	M4S3.5-1000S-UVIII	ø3.5 x 4-Branch x 1000L
★	MSS10-1000S-UVIII	ø10×1000L
★	MKS50-1000S-UVIII	Line Width: 50mm
	MKS50X0.4W-1000S-UVIII	Line Width: 50mm x 0.4mm (2-Branch Type)

★Made-to-order products.

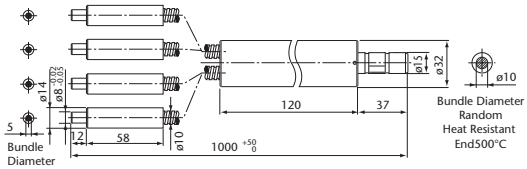
MSS5-1000S-UV III



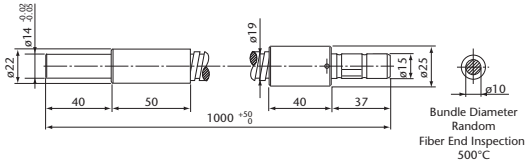
MWS5-1000S-UV III



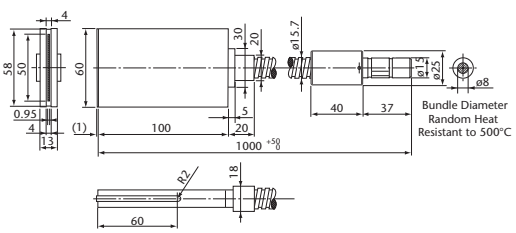
M4S5-1000S-UV III



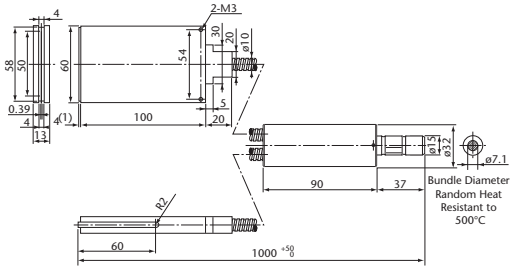
MSS10-1000S-UV III



MKS50-1000S-UV III

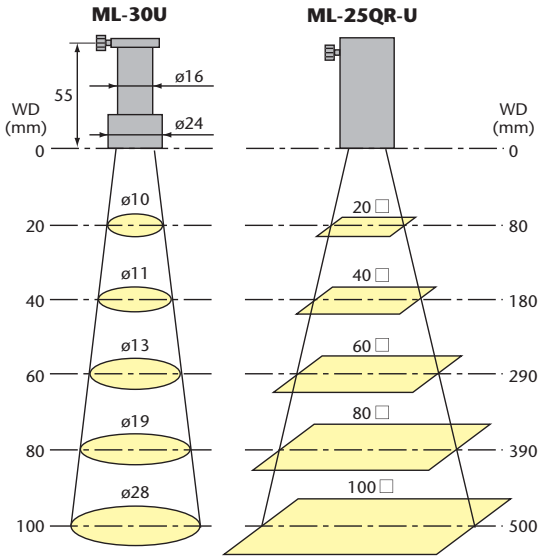


MKS50x0.4W-1000S-UV III



Quartz UV Light Guide Options

Unit for Condenser Lenses



Model	Notes
ML-30U	Condenser Lenses
ML-25QR-U	Uniform Light Irradiate Quartz Lens

Quartz UV Light Guide Data

UV Visible Range Quartz Fiber Characteristics

Optical Fiber Data

NA and Stucture Dimensions	NA		0.22±0.02
	Diameter	Core (μm)	200±5
		Clad (μm)	208±5
		Primary Coating (μm)	240±10
	Permissable Bend Radius (mm)		20
Materials	Core		Pure SiO^2
	Clad		With F SiO^2

Note: Fiber diameter (core/ clad) may be changed without any notice.

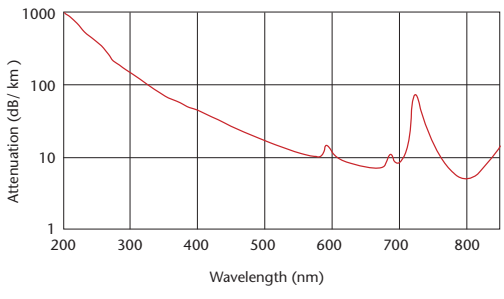
Features

- Suitable for UV-ray transmittance because of high OH contents
- Prices are low because of rational production system.
- Transmittance rate is stable for a long time when used for UV light guides.
- Can be used for i, g, and h rays
- The thorough quality control of transmittance performance and dimensional precision realizes easy processing with less dispersion and produces good-quality products.
- The technology, experience, and know-how of MORITEX, accumulated over a long period enables various fiber processing.

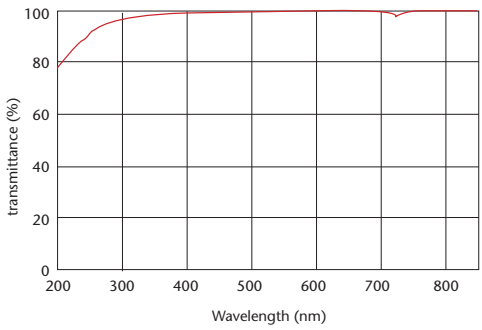
Applications

- Light guides for UV spot light sources
- Advanced light guides for semiconductors and liquid crystal exposure devices
- Light guides for analyzers
- Fiber probes for sensors
- Light guides for fluorometric analysis
- Light guides for medical use

Wavelength Attenuation Characteristics



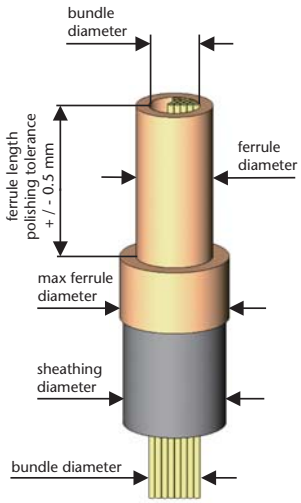
Wavelength Transmittance Rate Characteristics (Per Meter Excluding Fresnel Reflection)



Special Application Light Guides

We offer the following choices for the light guide end termination:

Epoxy Process



Epoxy End Termination:

Standard temperature resistance up to 200°C depending on application
High Temperature resistance up to 300°C on request

Note: Transmittance of glued bundle is approximately 10 % lower than the fused bundle with same diameter after fusing.

*Note: All dimensions in the drawings depend on the bundle diameter

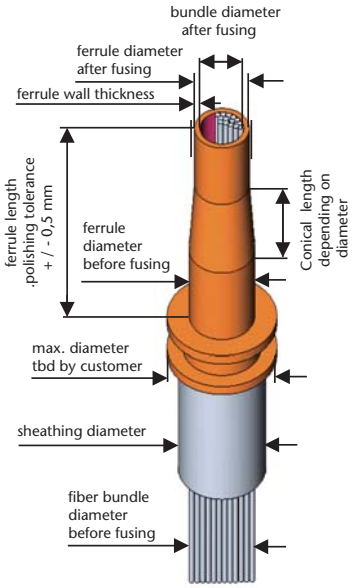
Fused Fiber Bundle Termination:

The end face of these light guides have a temperature resistance up to 350°C and approximately 10 % higher transmission values than epoxied fibre bundles with the same bundle diameter

Hot Forming Process

Hot Forming

Diameter range 2.5 – 21.0 mm after fusing



Sheathings:

Stainless steel, metal / PVC or metal / silicone sheathings, other sheathings on request

Fiber diameter values:

50 µm and 70 µm

Special applications:

Temperature resistance at the proximal end of up to 500°C can be achieved using quartz fibres and a special epoxy